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INDIAN KNOWLEDGE SYSTEMS

Vol. 1

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Kapil Kapoor
Avadhesh Kumar Singh

Kapil Kapoor
A. K. Singh

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India has continuous and cumulative intellectual traditions in many domains of knowledge. This tradition has its beginning in the *Ṛgveda*, the first attested Indo-European document, and continues to be alive in the life, practices and learning of the Indian people. The power and pertinence of knowledge systems in this tradition are attested by the existence of innumerable texts and thinkers that continue to be the subject of study in major contemporary universities round the world.

Not many today are aware of this rich heritage of thought. The Academy therefore produces rootless young minds that at best are ignorant and at worst have contempt for their own traditions of thought.

The two volumes, comprising 34 articles by distinguished scholars, expound some major Indian knowledge systems viz. Logic, Philosophy of Language, Technology and Crafts, Polity and Governance, Ethics and Sociological texts, Architecture, Poetics and Aesthetics, Law and Justice, Mathematics and Astronomy, Agriculture, Trade and Commerce and Medicine and Life Science. Under its seven sections — (i) Indian Knowledge Systems (Ex)Positions; (ii) Science; (iii) Medical Science in India; (iv) Psychology, Polity and Sociological Texts; (v) Aesthetics and Poetics; (vi) Philosophy, Logic and Language; and (vii) Knowledge Formation, Dissemination and Practice — it makes available the first statements that articulate their validity for the contemporary Indian and Western reality.

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Indian Knowledge Systems

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Volume – 1

Editors
Kapil Kapoor
Avadhesh Kumar Singh

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पुस्तकालय
गुरुकुल कांगड़ी विश्वविद्यालय

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Shri Padamvir Singh, the then Secretary, IIAS and, S.A. Jabbar, Academic Resource Officer and their team helped in all possible ways and with all resources available to them in taking such good care of the scholars and arranging the presentations and the sessions. We thank them.

We are thankful to all the contributors for accepting our request, for sparing their valuable time for the Seminar and also for gladly revising their papers and providing the necessary documentation.

We are also grateful to His Excellency Shri V.S. Kokje, Governor of Himachal Pradesh for inaugurating the Seminar and then presiding over plenary lectures delivered by Professor M.D. Srinivas and Professor G.N. Samten.

We also thank all those associated with the Institute for the beautiful time all of us had during the Seminar.

We thank Dr. Rajnish Mishra, Assistant Professor Centre for Sanskrit Studies, JNU, New Delhi for helping us in various ways in bringing out the volume and also our JNU students, Shri Tulsi, Dhananjaya Singh and Ms. Cherry Brahma for their help in preparing the index.

Finally, we are grateful to the Chairperson of the Indian Institute of Advanced Study, Shimla Professor J.S. Grewal for his kind support and encouragement.

KAPIL KAPOOR — AVADHESH KUMAR SINGH

Contents

VOLUME - 1

Acknowledgement v
— *Kapil Kapoor; Avadhesh Kumar Singh*

Key to Transliteration xi

Prefatory Note 1
— *Kapil Kapoor; Avadhesh Kumar Singh*

I
Indian Knowledge Systems: (Ex)Positions

1. Indian Knowledge Systems: Nature, Philosophy, Character 11
— *Kapil Kapoor*

2. Amara-Bhāratī: Sanskrit and the Resurgence of Indian Civilization 33
— *M.D. Srinivas*

II
Indian Knowledge Systems and Science

3. Educating Sciences of Life and Mind 51
— *Ananda Wood*

4. India's Scientific Mind: A Quest for Infinity 70
— *Michel Danino*

5. Dividing the Thousand into Three 84
— *Wagish Shukla*

6. Some Special Features in Procedures of Gaṇeśa Daivajña's *Grahalāghavam*: A Study of its Special Features 97
— ***S. Balachandra Rao***

7. Philosophy and Science in Indian Texts 115
— ***Ravi Khanna***

III
Medical Science in India

8. Modern Medicine and Ancient Indian Wisdom 141
— ***B.M. Hegde***

9. Āyurveda as a Knowledge System 156
— ***P. Ram Manohar***

10. Social Organization of Knowledge in India: Folk and Classical Traditions 172
— ***A.V. Balasubramanian***

IV
Psychology, Polity and Sociological Texts

11. Psychology: Five Major Indian Contributions 183
— ***Matthijs Cornelissen***

12. Indian Political Thought 206
— ***Ashok S. Chausalkar***

13. Governance According to Manu-Smṛti 229
— ***Bharat Jhunjhunwala***

14. Agriculture and Trade in India 260
— ***P. Shashi Rekha***

15. Treatment of Women in Indian Sociological Texts: With Reference to Manu-Smṛti 277
— ***Chandrakala Padia***

16. The Indian Noetic Tradition: The Dharmaśāstras — Bhāratiya Jñāna-Paramparā 290
— Santosh Kumar Shukla

17. Vision of Disaster Management in Kauṭilya's Arthaśāstra 304
— Niranjan Patel

18. Indian Psyche — A Note 308
— V. Prakasam

VOLUME - 2

Key to Transliteration ix

V
Aesthetics and Poetics

19. Alam Brahma 319
— Rewaprasad Dwevedi

20. Salvation by Knowledge: Ananda Coomaraswamy and the Tradition of Indian Aesthetics 323
— Chandrashekhar Jahagirdar

21. Kṛṣṇa Dvaipāyana's Veda of Life 333
— Kavita A. Sharma

22. Reading the First Adhyāya of the Naṭyaśāstra 350
— Makarand Paranjape

23. Neither Amnesia nor Aphasia: Knowledge, Continuity and Change in Indian Poetics 361
— Avadhesh Kumar Singh

VI
Philosophy, Logic and Language

24. Buddhist Traditions and Knowledge 405
— Geshe N. Samten

25. Indian Ontology: From Veda to Vedānta 412
— *Shashiprabha Kumar*

26. One Universe — Multiple Systems : Two Major Sources 420
— *Renu Malhotra*

27. Principles of Determining the Meaning of Words and Sentences: The Mīmāṁsakas' Perspectives 433
— *Daya Shankar Mishra*

28. Ontology of Speech Sounds 447
— *Rajnish Kumar Mishra*

29. Toward a Theory of Syntax 480
— *Bhavatosh IndraGuru*

30. Vākyapadīya: Basic Linguistic Concepts 488
— *R.V. Dhongde*

VII
Knowledge Formation, Dissemination and Practice

31. Syncretism in Indian Knowledge Systems: A Case Study of Durgā Pūjā 497
— *Debasish Chakrabarty*

32. Narrative as Epistemology in the Brāhamaṇa Texts 528
— *Atanu Bhattacharya*

33. Folk Wisdom and Environmental Crisis: A Contemporary Case Study from the Western Himalayas 534
— *Raghubir Singh Pirta*

34. Saraswati Hieroglyphs and Bhāratīya Cultural Continuum: Mlecchita Vikalpa and Bhāratīya Sabhyatā 565
— *S. Kalyanraman*

List of Contributors 673

Index 685

Key to Transliteration

VOWELS

अ *a*	आ *ā*	इ *i*	ई *ī*	उ *u*	ऊ *ū*
(but)	(palm)	(it)	(beet)	(put)	(pool)
ऋ *ṛ*	ए *e*	ऐ *ai*	ओ *o*	औ *au*	
(rhythm)	(play)	(air)	(toe)	(loud)	

CONSONANTS

Guttural	क *ka*	ख* *kha*	ग *ga*	घ *gha*	ङ *ṅa*
	(skate)	(blockhead)	(gate)	(ghost)	(sing)
Palatal	च *ca*	छ* *cha*	ज *ja*	झ *jha*	ञ *ña*
	(chunk)	(catch him)	(john)	(hedgehog)	(bunch)
Lingual	ट *ṭa*	ठ* *ṭha*	ड *ḍa*	ढ* *ḍha*	ण* *ṇa*
	(start)	(anthill)	(dart)	(godhead)	(under)
Dental	त *ta*	थ *tha*	द *da*	ध* *dha*	न *na*
	(path)	(thunder)	(that)	(breathe)	(numb)
Labial	प *pa*	फ* *pha*	ब *ba*	भ *bha*	म *ma*
	(spin)	(philosophy)	(bin)	(abhor)	(much)
Others	य *ya*	र *ra*	ल *la*	व *va*	
	(young)	(drama)	(luck)	(vile)	
	श *śa*	ष *ṣa*	स *sa*	ह *ha*	
	(shove)	(bushel)	(so)	(hum)	
	क्ष *kṣa*	त्र *tra*	ज्ञ *jña*	ळ* ḷ	ॠ* *ṝ*
	(*kṣatriya*)	(*trishūl*)	(*jñāni*)	(*play*)	

अं (ं)*ṁ anusvāra* (nasalisation of preceding vowel) like *saṁskṛti*

अः *ḥ* (*prātaḥ*) *ḥ visarga* (aspiration of preceding vowel)

ऽ 'Avagraha' consonant #'consonant (like:- *ime 'vasthitā*)

Anusvāra at the end of line is presented by म् = m (not ṁ)

HINDI LETTERS (Extras)

ँ *ñ*	ं ṅ	ड़* *ṛa*	ढ़* *ṛha*
(*candrabindu*)	(*anusvāra*)		

* No exact English equivalents for these letters.

Prefatory Note

THIS book contains the Proceedings of the Seminar organized by the Indian Institute of Advanced Study, Shimla in 2003.

India has continuous and cumulative intellectual traditions in many domains of knowledge. This tradition has its attested beginning in the *Ṛgveda*, the first Indo-European document, and continues to be alive in the life, practices and learning of the Indian people. As a mechanism of transfer and evolution of ideas from one generation to the next, this tradition is comparable to the perennial flow of the river Gaṅgā — *bhāratīya jñānaparamparā sanātana gaṅgā pravāha.*

The power and pertinence of the knowledge systems in this tradition are attested by the existence of innumerable texts, thinkers and schools that continue to engage the attention of scholars in major contemporary universities around the world. There has been, of late, for example, a renewal of interest in literature and aesthetics, in Pāṇini's celebrated grammar and in the consciousness studies. What needs to be remembered is the fact that this tradition, distinguished as it is in arts, philosophy and literature, has important texts and thinkers in the 'technical' disciplines and in moral and social sciences as well.

Indian knowledge systems need to be integrated in the mainstream education system. Towards this end, these texts and thoughts need to be re-contextualized and related to contemporary Indian and Western reality. Also we need to make available authoritative, lucid translations in Indian languages. Above all, we need now to look at these knowledge systems in the contemporary perspective.

As a first step, we thought of getting eminent scholars together in the Indian Institute of Advanced Study, scholars who have worked in these different areas. The principal objectives of the seminar included an introductory exposition, a statement of issues and drawing up of a list of primary texts and their available translations.

We hope that the Proceedings of the Seminar will be of use to scholars, teachers and students.

The disciplines/domains of knowledge proposed to be covered included Logic, Philosophy of Language, Technology and Crafts, Polity and Governance, Ethics and Sociological texts, Architecture — the Outer Sciences, Poetics and Aesthetics, Law and Justice, Mathematics and Astronomy, Agriculture, Trade and Commerce, and Medicine and Life Science. The proposal was approved by the Institute and the Seminar was subsequently held on September 29-30 and October 1, 2003.

The present book, brought out in two volumes, comprises papers presented at the seminar. The discussion that followed the presentation has been left out but incorporated by the scholars in the final draft of the papers. We strove to cover as many Indian knowledge systems as possible, but naturally could not cover all and quite a few systems, we are sure, would be undertaken for study later. We consistently focused on Indian Knowledge Systems and their relevance in India and global situations. The present volumes do not lay claim to any completeness or comprehensiveness of discussion of various issues pertaining to Indian Knowledge Systems. What we claim is our ceaseless commitment to these Systems and their validity and values. Gaps in the discussion of the Indian Knowledge Systems, that we are fully aware of, are the consequences of circumstances beyond our control, and we hope they will be attended to in due course of time.

Articles in these volumes deal with different Indian Knowledge Systems.

I

M.D. Srinivas in his seminal paper "Amara-Bhāratī: Sanskrit and the Indian Civilization" discusses the knowledge systems in Sanskrit and the relationship between Sanskrit and *bhāṣās* in the light of Sheldon Pollock's pronouncements regarding Sanskrit. He establishes that Sanskrit, the Amara-Bhāratī, is like the timeless *sanātana* civilization of India.

Kapil Kapoor in his paper "Indian Knowledge Systems — Nature, Philosophy, Character" discusses the centrality of knowledge (*veda*) in the Indian culture and civilization, the ways and modes of its constitution, preservation and dissemination. He discusses assumptions, models and methods of the Indian Knowledge Systems and lays stress on the great eclecticism of the Hindu mind.

II

Ananda Wood in his article "Sciences of Life and Mind" acknowledges the centrality of modern physics in the current ideas of science. However, he finds it restricted as science, and so he proposes the educating sciences of life and mind that embed Indian knowledge and wisdom.

Michel Danino in his paper "India's Scientific Mind: A Quest for Infinity" makes a scholarly exposition of the Indian quest for infinity through the number system as practised in astronomy. He also highlights the varying nomenclatures of each number in the Indian system and the temper of the scientific mind in India. He adds that the Indian Mind-scale operates at a much higher level than the Judaeo-Christian Mind-scale.

Wagish Shukla in his paper "Dividing the Thousand into Three" differentiates between the epistemological modes of the pagan and the non-pagan world. He also poetically establishes the fact that Vedic mathematics had a major role to play in temple architecture. Moreover, he asserts, that one has to realize that Indian thought can only be internalized when one realizes the fact that the world is a mental construct.

S. Balachandra Rao's paper "Procedures of Gaṇeśa Daivajña's Grahalāghavam: A Study of its Special Features" refutes the claim of Western critics that Indian mathematicians were mere manipulators and not objective observers. He also highlights the importance of mathematical astronomy in the Kerala tradition and the use that they are put to even today.

Ravi Khanna's article "Philosophy and Science in Indian Texts" deals with the relation between the Indian alphabet system and quantum mechanics as an interface of modern science and Indian metaphysics.

III

In "Modern Medicine and Ancient Indian Wisdom," B.M. Hegde discusses the contribution of India to the world of modern medicine with suitable historical and textual evidences.

P. Ram Manohar makes a brilliant exposition of *Āyurveda* in his paper "Āyurveda as a Knowledge System: An Inquiry into the Nature" by providing an internal viewpoint of *Āyurveda* as a knowledge system. He states that *Āyurveda* is a system of knowledge to benefit human society and is associated with the *Atharvaveda* as a mechanism to bring back harmony between *icchā*, *mana* and *kriyā*. He also adds that the awakening of *prajñā* is the major instrument of *Āyurveda*. Finally, he characterises *Āyurveda* as trans-scientific.

A.V. Balasubramaniam in his paper "Social Organization of Knowledge in India" talks about a rich folk tradition and a parallel classical system in the *Āyurveda*. He also stresses the need to bridge an apparent gap between the laukic and śāstric traditions in modern times that has grown after the decline of the oral tradition.

IV

Matthijs Cornelissen's paper on "Psychology: Five Major Indian Contributions to the World" revolves around the philosophical foundation, epistemology, theories of self and personality, the special areas of psychology and application of this psychology in the cognitive field. He discusses the five passive and five active aspects of Indian psychology. Finally, he concurs that the Indian consciousness is unitary, all-pervasive and transcendent in nature.

Ashok Chausalkar's paper "Indian Political Thought" deals with the contribution of *Lokāyata* to the *Arthaśāstra*. He also discusses the concepts of *tantrayuktis*, *dharma* and *saṁjñā* in the Indian political thought. He also points out that Indian methodologies could be developed based on these concepts.

Bharat Jhunjhunwala in his paper "Governance according to Manu-Smṛti" hypothesizes that one of the major causes of decline in the Indian thought system was the weakening of the concept of the brāhmaṇa. Focusing on *Manu-Smṛti* and other texts he pleads for sustainable governance by invigorating the tradition of the brāhmaṇa.

P. Shashi Rekha's article deals with modes and ways of agriculture and trade in India and she records references to them in the different texts.

Chandrakala Padia's paper "Women in Indian Sociological Texts with Special Reference to Manu-Smṛti" traces the place of women in the Indian tradition by questioning several texts that were apparently anti-women. She also critiques the modernist and post-modernist feminist theories.

Santosh Kumar Shukla reviews *Dharmaśāstra* and its traditions of texts and thinkers and underlines its continuity. He proposes a sample contemporary *dharmaśāstra*.

Dr. Niranjan Patel in his essay on the famed *Arthaśāstra* expounds Kauṭilya's awareness of the dimensions of natural disasters and his disaster-management schedule that has so much contemporary relevance.

V. Prakasam in his paper discusses the constituents of Indian psyche and emphasizes that the Indian civilization is marked by convergence, and not clash.

V

Rewa Prasad Dwivedi reflects on a unique and quite often unattended concept of "Alam Brahma" in Sanskrit poetics and establishes a new viewpoint to assess the vast material on Sanskrit literary theory.

Chandreshekhar Jahagirdar in his paper "Salvation by Knowledge: Ananda Coomaraswamy and the Tradition of Indian Aesthetics" discusses the relevance of Ananda Coomaraswamy in comprehending the art and aesthetics of Indian culture and regrets the fact that such an intellectual giant has been neglected by intellectual aesthetes of the post-Independence Marāṭhī literature while coming to terms with Marāṭhī literature. He terms Coomaraswamy's contribution to Indian culture as "Salvation through Knowledge".

Kavita Sharma in her paper "Kṛṣṇa Dvaipāyana's Veda of Life" explores the meaning and implications of the *Mahābhārata* as the fifth Veda and correlates them with contemporary issues and problems.

Makarand Paranjape in his paper "Reading the First Adhyāya of the *Nāṭyaśāstra*" discusses strategies for reading a critical text of the Indian tradition. In his focus on the first chapter of the *Nāṭyaśāstra* he demonstrates the sociological dimension of Indian thinking about literature.

Avadhesh Kumar Singh in his comprehensive paper "Neither Amnesia nor Aphasia: Knowledge, Continuity and Change in Indian Poetics" discusses the mode of constitution of knowledge in the long tradition of Indian poetics by studying Bharatamuni's *Nāṭyaśāstra*. Further, dealing with the continuity of the tradition, he counters the proposition pertaining to "rupture," "break" or "amnesia" in the tradition. With conclusive evidence appended with the paper, he argues that Indian poetical tradition continues in Sanskrit and also in its deflected manifestation in *lokbhāṣā*s and modern Indian Languages. He stresses the imperative of making Sanskrit poetics the foundation, and also argues for initiating a dialogue among various Indian poetical/critical traditions without ignoring the influence of the Western/English tradition.

VI

Professor Samten in his paper "Buddhism and Knowledge System" discusses the Indian Knowledge Systems with special reference to Tibetan Buddhism. He highlights the fact that a number of Sanskrit texts have been retained in Tibetan through the process of authentic translation. He also avers that the so-called reductionist approach in Buddhism is constructive and this was established by the Mādhyamika school of thought.

Shashiprabha Kumar in her paper on "Indian Ontology: From Veda to Vedānta" explicates the meaning, nature and typology of Indian ontological statements ranging from Veda to the subsequent various Indian philosophical systems.

Renu Malhotra in her paper "One Universe — Multiple Systems : Two Major Sources" explains the substance and significance of Vedānta philosophy. She brings out its enduring relevance for contemporary life and modern man.

Daya Shankar Mishra in his paper on "Principles of Determining of Meaning of Words and Sentences: The Mīmāṁsakas' Perspectives" takes a comparative view of the major theoretical positions on lexical and sentential meanings emanating from the Mīmāṁsā School of philosophy.

Rajnish Mishra discusses "Ontology of Speech Sounds" in the context of Kāśmīr Śaiva philosophy. Exposition of *Maheśvarasūtra* according to Ācārya Abhinavagupta has also been presented.

Bhavatosh IndraGuru in his paper "Towards a Theory of Syntax" traces the grammatical-stylistic foundations of language that determine interpretation, including literary interpretation.

Prof. R.V. Dhongde in his paper on Bhartṛhari's celebrated *Vākyapadīya* focusses on the contemporary analogues of several of Bhartṛhari's key concepts.

VII

Debasish Chakravarty in his essay "Syncretism in Indian Knowledge Systems: A Case Study of Durgā Pūjā" shows how philosophy, theory, metaphysics and lived experience merge to constitute mass social practices that are covered under the rubric of ritual. He explicates the dense intellectual foundation of what are termed simply as 'festivals.' He links the modern recitation of prayers to the chanting of Vedic *mantra*s and modern ritual festivals with *yajña*s. He further argues that such falling together of powerful streams of thought and practices is in fact a characteristic of all Indian knowledge systems. The paper conclusively demonstrates the continuity since Vedic times of Indian cultural practices.

Atanu Bhattacharya's paper "Narrative as Epistemology in the Brāhamaṇa Texts" is concerned with the question of knowledge formation and knowledge dissemination in the Indian tradition. He argues that these modes are culture specific and very different from those obtaining in the Western culture. Examining the *Brāhmaṇa*s, the prose liturgical texts of Vedic culture, he demonstrates how narratives not only constitute knowledge and function as "theory," but also explicate the philosophical and metaphysical foundations of ritual action. This study complements one by Debasish Chakravarty.

R.S. Pirta in his paper "Folk Wisdom and Environmental Crisis: A Contemporary Case Study from the Western Himalaya" examines the dynamics that has gone into two major mass movements in the Himālayas — Chipko movement and the movement against the Tehri dam. He foregrounds the issues involved, the local rights of the people and the overarching concept of holistic development, the very notion of development and shows how in India there are different civilizational parameters involving the goals of life. He demonstrates the value of folk wisdom when a conflict develops between the living traditions and modernity.

Dr. S. Kalyanraman in his exhaustive essay "Sarasvati Hieroglyphs and Bhāratīya Cultural Continuum: Mlechhita Vikalpa and Bhāratīya Sabhyatā" brings together epigraphy, archaeology, numismatics, history, satellite photography and contemporary observations to knit the story of Sarasvati river civilization. A deeply scholarly statement, it is appropriately annotated and illustrated and is a conclusive argument for the existence of the Sarasvati river and its influence on the civilization and on Indian life. The methodology of presentation is a little unusual but is demanded by the intricate subject-matter.

KAPIL KAPOOR — AVADHESH KUMAR SINGH

Part I
Indian Knowledge Systems: (Ex)Positions

1

Indian Knowledge Systems

Nature, Philosophy and Character

Kapil Kapoor

I

INDIAN civilization has always attached great value to knowledge — witness its amazingly large body of intellectual texts, the world's largest collection of manuscripts, its attested tradition of texts, thinkers and schools in so many domains of knowledge. In *Śrīmadbhagvad-Gītā*, 4.33,37-38, Lord Kṛṣṇa tells Arjuna that knowledge is the great purifier and liberator of the self. As we had noted in our Panjab University Endowment lecture,[1] India's knowledge tradition is ancient and uninterrupted like the flow of the river Gaṅgā, from the Vedas (Upaniṣads) to Sri Aurobindo, knowledge or *jñāna* has been at the centre of all rational and speculative inquiry in India.[2]

Three terms are closely connected in all discussions of knowledge — *darśana*, *jñāna* and *vidyā*. *Darśana*, philosophy is the "system," the point of view, which yields/leads to *jñāna*, knowledge. When knowledge gathered about a particular domain is organized and systematized for purposes of, say, reflection and pedagogy, it is called *vidyā*, "discipline." The entire body of organized knowledge is divided into two sets in the *Muṇḍakopaniṣad* — *parā vidyā* and *aparā vidyā* (*Muṇḍakopaniṣad*, I.1.4), knowledge of the ultimate principle, *paramātmā* or *Brahman*, (that is the metaphysical domain) and knowledge that is secondary to the means by which one grasps *akṣara- Brahman*, (knowledge of the worldly domain). Distinction is accordingly made between *jñāna* and *vijñāna*, the knowledge of facts of the perceptible world. The first kind of knowledge is observational and is gained by the eyes, etc.; the other is experiential and is gained by the inner self as *draṣṭā*. In one, the whole cognizing self is *bahirmukhī* directed towards and involved in the outer world; in the other, the whole cognizing self is *antarmukhī*, (turned inwards). To acquire the first kind of knowledge, only the sensory apparatus, including the mind, has to be prepared, but to acquire the second kind of knowledge the knower has to go through a process of preparation, *sādhanā*, (for knowledge-acquisition). The Jaina thought also makes a distinction between *pratyakṣa jñāna* which is knowledge present to the self (*ātma sāpekṣa*) and *parokṣa jñāna* which is present to the senses and the mind (*indriya-mana sāpekṣa*).

---

[1] *Knowledge, Individual and Society in Indian Traditions*, Saini Memorial Foundation Lecture, Panjab University, Chandigarh, 2002 (monograph).

[2] Sri Aurobindo says in his letters, "We Indians, born and bred in a country where *jnana* has been stored and accumulated since the race began, bear about in us the inherited gains of many thousands of years. . ." *India's Rebirth*, (1905), p. 14. Talking about his own practice, he says: "[The Mother and myself] do not found ourselves on faith alone, but on a great ground of knowledge which we have been developing and testing all our lives," (1932), *op. cit.*, p. 191.

II

In the tradition, knowledge has been **constituted, stored and maintained** in the framework of the oral culture. According to Bhartṛhari, knowledge is constituted in our inner self. There is the *antarjñātā*, constituted by the input of the senses (*indriyā*), processed by the mind (*mana*) and the intellect (*buddhi*), and finally constituted knowledge exists as our transformed, alert self, *citta* (*Vākyapadīya*, I.112-14). Therefore, while both perception and inference are given primacy as epistemologies, *tarka* (argumentation) is also accorded an important place; the Indian mind has not relied completely on mind and senses and has accorded the central role in knowledge formation to meditation and deep reflection, *cintana* and *manana*. Also *śabda-pramāṇa* (verbal testimony) has always enjoyed authority with major systems of thought. Seeing with "mind's eye" is the typical epistemology of Indian thought. The Jaina thinkers, interestingly, define perception as *ātma-pratyakṣa* — what is present to the inner self[3] and not as what is present to the senses. To put it in contemporary vocabulary, Indian mind has depended more on hypothetico-deductive methodology than on observational inductive methodology.

Just as knowledge is by and large constituted in the mind, it is also stored in the mind, not outside the mind. This is another requirement of the oral culture. This requirement, we noted earlier,[4] has determined the structure and style of the texts. As oral texts, they are constituted to facilitate memorization as they have to be held in the mind and transmitted orally in the *guru-śiṣya* mode. So even the dictionaries, *Amarakoṣa* for example, are metricalized. Other features of speech are also employed both to help memorization and to communicate meaning — thus, for example, Pāṇini employs pitch variation to mark the change of topic in his grammar *Aṣṭādhyāyī*. They are highly structured, are necessarily brief and are composed in abbreviated, sūtraic, mnemonic style — a highly nominalized style with the language replete with technical vocabulary. This meta-language, with its other complex devices of abbreviated expression, such as *anuvṛtti*, reading parts of earlier statements into subsequent statements, adds to the density of the texts.

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[3] If empirical observation had been the condition of valid knowledge, the work of Pāṇini and Āryabhaṭṭa, the astronomer, would not have been possible.

[4] Please see, "Texts of the Oral Tradition" in Kapil Kapoor, *Language, Linguistics and Literature. The Indian Perspective*, Delhi: Academic Foundation, 1994, pp. 27-30.

The oral texts, we said, are highly structured. The Indian mind is acutely taxonomic and the layered structure of the texts reflects the structured analysis of the domain of knowledge. Overt organizers such as *adhikaraṇa* and *prakaraṇa* signify the inter-relationships and the order of treatment of subjects. Such embedding may extend up to four layers. This enables the identification of statements through a four-point reference to their location in the over-all text down to the particular *sūtra* and *kārikā* as is the case with the *Ṛgveda*, *Mahābhārata* and *Arthaśāstra*, for example. One notices then that though the texts are oral, they have a high degree of complexity and stability. The complexity of organization and the density of statement are the causes of the need to abbreviate them so that they can be held in the mind along with other texts of all the contending schools in that domain of knowledge.

A different philosophy of knowledge and of cognitive processes informs this mode of orality. Knowledge in this mode is simultaneous, not sequential/ linear — as is the case in the scriptal traditions. It is important to note that oral culture is an alternative culture of knowledge and not a default culture, one that is there because writing systems are unknown as is often alleged. Nobody could say this of India where there is evidence of the existence of a script in the ancient Mohenjo-Dāro civilization and where Aśoka's inscriptions (fourth century BC) come in three scripts — Brāhmī, Kharoṣṭhi and proto-Draviḍ. In the oral culture of knowledge, the scholar has a library in his mind and the speed of information processing is very high, much higher than in the scriptal mode where the information is first transferred to the mind through senses. In this case the mind-memory is loaded with large bodies of data — remember that the mind has a much larger capacity to store data than the hard disk of a modern computer — and there is direct visualization of data *with the eyes shut*. This explains the puzzling requirement in the scholastic tradition for a scholar to be the master of fourteen disciplines, puzzling — because how can one master so many disciplines? It is not possible in the time consuming, linear mode of written texts that can be of inordinate length. But it certainly appears possible in the mode in which the texts are highly abbreviated[5] and are capable of being stored in the mind. Orality thus as specific mode of knowledge formation and knowledge storage determines both the structure and the use of the texts.

Of course, the texts have a relatively high degree of opacity. The primary texts at least are not expository — they do not give the history nor do they explain the methodology of constituting knowledge. They simply state the conclusions in categorical, declarative sentences that have a ring of finality about them. Partly this was determined by the needs of brevity but, more importantly, it has something to do with the intellectual system in which the thinker in a given domain worked in a framework in which the academy shared all the earlier texts. He made a new statement only when he made an advance on the tradition. The entire tradition of texts in that domain is interwoven in a later text. Therefore, only minimal explicit statements are made and hence the texts are more or less opaque. It has nothing to do, as is often alleged, with the socio-political gesture of keeping knowledge esoteric and restricted only to a class of people. It was, in fact, the condition for facilitating countrywide academic sharing and continuity of thought. The full explication of the master mind's sūtraic statements belonged to the other part of the scholastic tradition — the commentary tradition, the *ṭikā paramparā*.

These modes of text constitution in fact enabled the maintenance of texts over long stretches of time, much more exact and assured maintenance than is apparently possible when the texts are held *outside* the mind in perishable mediums such as paper, floppy and CD.[6] The texts were mnemonically composed and could be held in the mind with a little practice. To ensure exact reconstruction of the texts, they were re-analysed and re-arranged in various permutations and memorized by a number of scholars. This ensured exact reconstruction of the text any time purely from memory. We are referring to the elaborate and complex *pāṭha*-tradition which analysed and re-organized texts in various permutations and combinations which when stored in the mind in different arrangements/combinations ensured accurate re-construction of the texts even when, and if, all the exteriorized, written versions were to be destroyed. The texts have thus been maintained intact and uncorrupted through intricate techniques of mental storage and oral transference.[7]

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[5] Pāṇini's *Aṣṭādhyāyī*, the one complete, rule-bound, explicit grammar of any natural, human language, is composed in only 32,000 syllables arranged in 3997 *sūtra*s organized in 1000 *śloka*s of 4-lines each in *anuṣṭubh* metre so that it could be, as it used to be, recited in monotone in one enunciation.

[6] Thus, the *Ṛgveda* has come down intact, with not a sound in dispute, over virtually 5000 years while Shakespeare's plays that were in fact printed in their time have many textual problems in only 500 years.

Great value has always been attached to knowledge and tremendous intellectual effort has gone into maintaining the texts of knowledge. As we have noted elsewhere[8] even though the Hindu culture is not bibliolatrous, it has accorded a special status to certain texts, the texts of knowledge, and made them perennial objects of study. The difference, however, is that there has been a complete freedom to interpret and come up with competing interpretations, a freedom that is not always present in other cultures.[9]

But it has not been simple, this successful maintenance of texts. Various processes have been employed in this experience of loss, recovery and renewal. Dynamic communities do not allow their systems of thought to die. As we have described elsewhere,[10] oral cultures have in-built mechanisms for the recovery of texts. A culture may, therefore, employ one or any of the following seven text maintenance/renewal mechanisms to keep the thought alive and re-contextualized:

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[7] Max-Müller has noted (in his *India — What Can It Teach Us*, Delhi: Munshiram Manoharlal, Indian Edition, 1991, p. 4) that texts in the oral tradition are maintained in memory. "This may sound startling, but what will sound more startling, and yet is a fact that can be easily ascertained . . . at the present moment, if every MS of the *Ṛgveda* was lost, we should be able to recover the whole of it — from the memory of the *Srotriyas* in India. . . . Here then we are not dealing with theories, but with facts, which — anybody may verify. The whole of the *Ṛgveda*, and a great deal exists at the present moment in the oral tradition. . ." (*India . . ., op. cit.*, p. 131). Orality, as a mode of constituting and maintaining knowledge, organizes knowledge in the mind, as against the literate traditions in which knowledge is maintained externally. Max-Müller calls those who have memorized the texts, "living libraries," p. 132.

[8] Please see Kapil Kapoor, "Some Reflections on the Interpretation of Texts in the Indian Tradition" in *Structures of Signification*, ed. H.S. Gill, vol. I, Delhi: Wiley Eastern Limited, 1990.

[9] Bhartṛhari says: "Monism, Dualism and any number of points of view (*pravādā bahudhā mata*), all equally valid, are often all rooted in and argued from the same proposition," (*Vākyapadīya*, 1.8).

[10] See, "Vyāsa Paramparā, Text renewal Mechanisms, Max-Müller and European Scholarship" in *Max-Müller and Contemporary European Scholarship*, Proceedings of the International Seminar Ramakrishna Mission, Kolkatta, 2000, pp. 117-35.

(i) **Commentary** — Such as Kātyāyana's *Vārttika*, 350 BC; Patañjali's *Mahābhāṣya*, second century BC; *Kāśikā*, seventh century AD Patañjali's *Mahābhāṣya* and Śāṅkara *Bhāṣya;*

(ii) **Recension** (*a critical revision*) — Such as *Cāndra Vyākaraṇa*, fourth century AD, a Buddhist recension of *Aṣṭādhyāyī* that interestingly eschews what it believes is its philosophically loaded technical vocabulary; *Jainendra Vayākaraṇa/Śabdānuśāsana*, composed in the fifth century AD by Devanandin or Siddhanandin), and *Aṣṭāvakra Gīṭā*;

(iii) **Reduction** (*a re-arrangement*) — Such as *Rūpamālā* of Vimala Saraswati, *Siddhānta Kaumudī* of Bhaṭṭojīdīkṣita, sixteenth century AD and *Laghusiddhānta Kaumudī*, eighteenth century AD of Varadarāja;

(iv) **Adaptations** — *Hemaśabdānuśāsana* by Hemacandrācārya, eleventh century AD, an adaptation of Pāṇini's grammar to describe Prākṛt, contemporary spoken Prākṛts or Śaṅkaradeva's Assamese adaptation of Vālmiki *Rāmāyaṇa* and such other adaptations, thirteenth-fourteenth centuries onwards in almost all Indian languages.

(v) **Translation** — For example, majority of translations of major literary and philosophical texts in almost all the modern Indian languages, fourteenth century or so onwards; Hindī paraphrase of *Aṣṭādhyāyī* by Shri Narayana Misra and English translation of the text with incorporations from *Kāśikā* by Sri S.C. Vasu (1898).

(vi) **Popular exposition** — The *kathā-pravacana paramparā*, a hoary tradition, has been chiefly instrumental in both the maintenance and renewal of texts of thought.[11] The two parallel traditions, the learned and the popular, have been all through and are even today mutually enriching each other and contributing in equal measure to the development of thought through processes of paraphrase, explication, verification, falsification, illustration.

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[11] This *kathā-pravacana paramparā* continues to be vigorous and alive even today with many distinguished expounders of intellectual texts such as Upaniṣads, Vedānta, *Bhagavad-Gītā* and *Rāmāyaṇa* drawing huge crowds in their live discourses and having millions of devoted followers across the country. Swami Vidyananda Ji and Sri Murari Bapu are just two examples. Their discourses are learned but *sārasa* and in the functional mode laid down by the *Nāṭyaśāstra* make profound thought accessible to the people.

(vii) **Re-creation** — The *Mahābhārata*, for example, is maintained by the repeated creative use of its themes and episodes, by re-creations, such as those by Bhāsa who wrote a number of plays on epic characters and episodes.

There is (i) the availability of the text, (ii) the ability to understand the text, and (iii) the relevance of the text, all of which are in the scope of maintenance. Of these, in the learned tradition, the commentary, *ṭīkā*, is the most important means as the continuous and cumulative *ṭīkā paramparā*, the commentary tradition, ensured all the three dimensions — availability, comprehensibility and contextual relevance of the texts. The commentary tradition is a cumulative tradition, i.e., a number of commentaries on a given text follow each other in succession with every succeeding commentary taking into account and building on the preceding ones. Almost all the major texts have been cumulatively commented upon.[12] These commentaries take many forms from bare annotation (*pañjikā*) to exhaustive, encyclopedic analysis (*Mahābhāṣya*)[13] and the purpose is, as Vāmana-Jayāditya say ". . . to bring together and unify the . . . knowledge that lies scattered in the *vṛttis*, *bhaṣyas* and all *śāstras*. . . ."

Thus, texts over a period of time (i) grow opaque, and/or (ii) become asymetrical with the context, and/or (iii) their connection with the tradition of knowledge in that domain becomes incoherent. If the Indian intellectual texts have not become "dead" and are still studied in the learned, though now relatively esoteric tradition, it is because the *ṭīkā paramparā* has kept them alive and pertinent. Some of India's most original minds have been exegete, commentators — from Yāska (ninth century BC), Śabarasvāmin (first century AD), Kumārila Bhaṭṭa (sixth century AD), Ādi Śaṅkara (seventh century AD), Sri Rāmānuja (eleventh century AD), Madhvācārya (thirteenth century AD), Sāyaṇācārya (fourteenth century AD), Jñāneśvara (fourteenth-fifteenth century AD) right down to "The Great Moderns," Sri Aurobindo, Mahatma Gandhi, Radhakrishnan, Vinoba Bhave (who all wrote commentaries on the *Bhagavad-Gītā* in the illustrious line of Śaṅkara and Rāmānuja).

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[12] For example, the commentaries, *ṭīkā*, on Jaimini's *Mīmāṁsāsūtra: Śābarabhāṣya* (first centry AD?); Kumārila Bhaṭṭa's *Ślokavārttika* and *Tantravārttika* (sixth century/seventh century AD?) commentaries on *Śābarabhāṣya*; Prabhākara Misra's commentary on *Śābarabhāṣya*, *Bṛhati* (seventh century AD ?); Śālikanātha's commentary on *Bṛhati*, *Ṛjuvimalā* (ninth century AD); Pārthasārthy Misrā's *Śāstradīpikā* (fourteenth century AD?); Madhvācārya's *Nyāyamālā* (fourteenth/fifteenth century AD); Appayadīkṣita's *Upakramaparākrama*, Āpodeva's *Mīmāṁsānyāyaprakāśa*, Khaṇḍadeva's *Mīmāṁsā-kaustubha*, Vāgabhaṭa's *Bhaṭacintāmaṇī*, Nārāyaṇa Bhaṭa's *Mānamayodyā* (all seventeenth century); Kṛṣṇayajavana's *Mīmāṁsāparibhāṣā* (eighteenth century AD). The commentary literature is indeed endless; we have mentioned here only those that are most frequently cited and discussed. There are indeed commentaries on these commentaries (which is what makes the tradition "interlaced") such as the two major *Ślokavārttika* commentaries *Kāśikā* by Sucharita Misra and *Nyāyaratnākara* by Parthasarthy Misra, the *Tantravārttika* commentaries *Nyāyasudhā* by Someśvara Bhaṭa, *Tauttātītamatatilaka* by Bhāvadeva Bhaṭa, to mention only two. (For a complete list, please see Ganganatha Jha's Introduction in his translation, *Ślokavārttika*, 1983 reprint, Delhi: Satguru Publications).

[13] Rājaśekhara in his *Kāvyamīmāṁsā* (ninth century AD) in chapter 1, lists eight forms of exposition: *vṛtti, paddhati, bhāṣya, samīkṣā, ṭīkā, pañjīkā, kārikā* and *vārttika*.

Thus, the texts of knowledge have been constituted, maintained and transmitted in the oral framework of Indian history of ideas.

III

Knowledge of different domains over a period of time has been institutionalized as so many disciplines, *vidyā* and crafts, *kalā*.

Indian disciplinary formations include fields as diverse as philosophy, architecture, grammar, mathematics, astronomy, metrics, sociology (*dharmaśāstra*), economy and polity (*arthaśāstra*), ethics (*nītiśāstra*), geography, logic, military science, weaponry, agriculture, mining, trade and commerce, metallurgy, mining, shipbuilding, medicine, poetics, biology and veterinary science. In each of these a continuous and cumulative series of texts continues to be available in spite of widespread loss and historically recorded destruction.

The tradition talks of 18 major *vidyā*s, theoretical disciplines, and 64 *kalā*s, applied or vocational disciplines, crafts. The 18 *vidyā*s are: the four Vedas, the four subsidiary Vedas (*Āyurveda*, medicine, *Dhanurveda*, weaponry, *Gandharvaveda*, music and *Śilpa*, architecture), Purāṇa, Nyāya, Mīmāṁsā, Dharmaśāstra and Vedāṅga, the six auxiliary sciences, phonetics, grammar, metre, astronomy, ritual and philology — these constituted the 18 sciences in ancient India. As far as the applied sciences are concerned, there are competing enumerations[14] of 64. These "crafts" have a direct bearing on day-to-day life of the people and most of them are still a part of the Indian life. For the craftsmen, the craft is not only their profession, it is also their worship. These crafts were taught, are still taught, by a teacher to his disciples, for the learning of a craft requires watching the teacher at work, starting by doing odd, little jobs assigned by the teacher and then the long practice, *abhyāsa*, on one's own. Only after considerable experience the learner refines his art and then may set-up on his own. We can see this even today in Indian dance, music and even automobile-repair, which must now be counted among the crafts. The traditional lists, as the Śrībāsavarājendra's list, enumerate, history, poetry, calligraphy, metrical compositions, dancing, evaluating precious stones, wrestling, cooking, magic, shoe-making, thieving, iron smithery, painting, gardening, carpentry, hair-dressing, hunting, trading, agriculture, animal husbandry, making medicines, leather work, driving, fishing, speech-making among the crafts. Other lists add singing, playing musical instruments, preparing manuscripts, garland-making, dyeing, body-care, use of weapons, making moulds, performing *pūjā*, (daily worship), inlay work, arranging flowers, preparing scents, bangle-making, stitching, making ornaments, making sweets, home-planning, training animals, training birds, coding, making instruments/machines, training memory, physical exercise and yogic practices. It is easy to see their close relationship with ordinary life. It is also easy to see that these crafts are still important means of livelihood. It is also easy to see the realism in the enumeration — gambling and thieving are also recognized as "arts."

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[14] By Śrībāsavarājendra in *Śivatattvaratnākara*, Vātsyāyana in *Kāmasūtra*, Śrīdharasvāmī in his commentary on *Śrīmadbhāgavata*, 10.45.64 and Śukrācārayā in *Śukranīti*.

It is significant that no opposition is set-up in the Indian tradition between "art" and "craft." The craftsman is held in high esteem as a *sādhaka*, a devotee whose mind attaches with great reverence to his object. His training is a form of *tapa*, a dedication and the primary virtue he has to acquire is concentration, *ekāgratā*.[15]

Even for the crafts, which are "practical" disciplines there are basic texts, for example, the popular prosody text, *Piṅgalā*. But it is true in the case of crafts just as it is true in the case of *vidyā*s that the knowledge resides in the teacher, the *guru* or the *ustād*, the term a man in the street uses these days. This is the root of the great reverence attached to the *guru*s in the Indian tradition as he is the source and the ultimate authority in the given domain of knowledge. In each discipline, there are Schools; in each School there are thinkers and texts. We illustrate this with reference to Poetics:

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[15] Therefore, for Ādi Śaṅkara the arrow maker was the paradigm example of a *yogī*.

Table 1: Major schools, thinkers and texts

School	*Thinker (s)*	*Text (s)*
Rasa	Bharata	*Nāṭyaśāstra* (second century BC)
	Dhanika-Dhanañjaya	*Daśarūpaka* (tenth century AD)
Alaṁkāra	Bhāmaha	*Kāvyālaṅkāra* (sixth century AD)
	Daṇḍin	*Kāvyādarśa* (seventh century AD)
	Udbhaṭa	*Kāvyalaṅkārasārasaṁgraha* (ninth century AD)
	Rudraṭa	*Kāvyālaṅkāra* (ninth century AD)
Rīti	Vāmana	*Kāvyālaṅkārasūtra* (ninth century AD)
Dhvani	Ānandavardhana	*Dhvanyāloka* (ninth century AD)
	Abhinavagupta	*Abhinavabhāratī* (also for *rasa* theory) (eleventh century AD) and *Locana* (commentary on *Dhvanyāloka*) (eleventh century AD)
	Mahimabhaṭṭa	*Vyaktiviveka* (eleventh century AD)
Vakrokti	Kuntaka	*Vakroktijīvita* (eleventh century AD)
Guṇa-Doṣa	Daṇḍin	*Kāvyādarśa* (listed above)
	Also Bhāmaha	*Kāvyālaṅkāra* (listed above)
Aucitya	Kṣemendra	*Aucityavicāracarcā* (eleventh century AD)

Table 2: Major *saṁgraha* texts

Thinker	*Text(s)*
Rājaśekhara	*Kāvyamīmāṁsā* (ninth century AD)
Bhojarāja	*Sarasvatīkaṇṭhābharaṇa*, *Śṛṅgāraprakāśa* (eleventh century AD)
Mammaṭa	*Kāvyaprakāśa* (eleventh century AD)
Viśvanātha	*Sāhityadarpaṇa* (fourteenth century AD)
Pt. Jagannātha	*Rasagaṅgādhara* (seventeenth century AD)

This is not an exhaustive but a representative list of the texts of poetics. Two kinds of texts are noted in Tables 1 and 2 — primary texts which lay down the foundational principles and *saṁgraha* texts which are a compendium of all Schools in that discipline. In fact, one may talk of three kinds of texts — primary (*śāstra*), compendium (*saṁgraha*) and commentary/expository (*ṭīkā*). Thus Bharata's *Nāṭyaśāstra* is a primary text, Mammaṭa's *Kāvyaprakāśa* is a compendium text, Abhinavagupta's *Abhinavabhāratī* is a commentary (*ṭīkā*).

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KAP-I.1

These three kinds of texts are available in most disciplines — this is the way knowledge is organized and presented for purposes of pedagogy.

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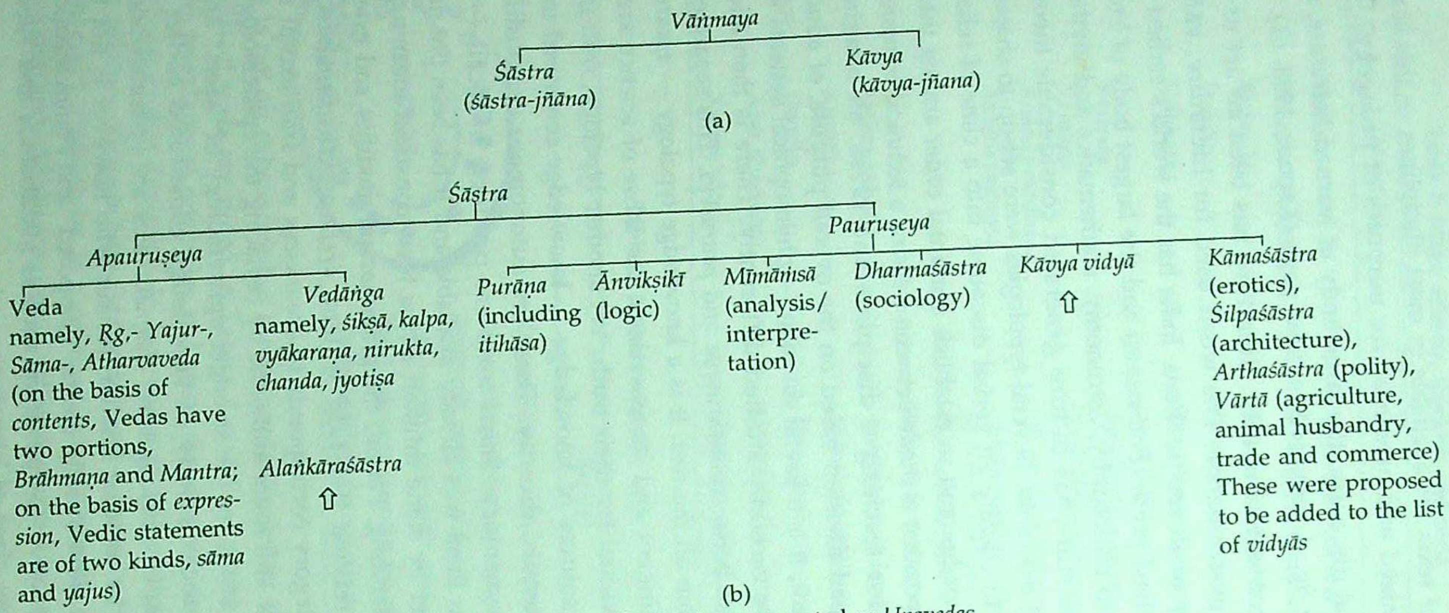
The entire verbal discourse, the large body of learned literature, may be structured as in the *fig.*, 1 provided on next page (Kapoor, 1998, 61).

In the Indian context of orality, literature has been an act of public communication, a performance. The word used for literature, **vāṅmaya**, underlines the orality of all compositions. India has the world's earliest poetry (*Ṛgveda*) and the earliest prose (*Brāhmaṇas*) and the largest body of literature ranging from lyrics to philosophy, astronomy, mathematics and myths. This massive body of literature has in turn generated considerable theoretical thinking about verbal discourse. Several typologies were set-up to characterize different discourses, to classify all verbal discourse into a cline of reliability, as discourses of knowledge and to establish a mutual order among them. To begin with, a basic opposition is made between a *śāstra*, a technical composition/treatise to be used for teaching a discipline and *kāvya*, an imaginative composition. As a broad division based on the overall purpose, of education as against entertainment, it is a useful division — philosophical systems which come under *śāstra* are certainly studied differently. There is then another typology, an opposition between *apauruṣeya* and *pauruṣeya*. This separates the Vedic compositions from all the rest. It is a knowledge typology — *apauruṣeya* discourse is non-contingent and its assertions like those of science are not dependent on an individual for their truth. Yet another typology, *śruti-smṛti-kāvya* is based in the sources of knowledge — knowledge contained in the *śruti* has been apprehended directly. These are autonomous compositions. *Smṛti* literally means memory. *Smṛti* texts are products of recall — the knowledge contained in them was already available and it has been put down in an organized manner by some thinker. *Kāvya* texts construct meanings in an individual's understanding. Pāṇini, the grammarian, modifies and extends this typology into a refined five-fold system: *dṛṣṭa-prokta-upajñāta-kṛta-vyākhyāna*. The first category corresponds to *apauruṣeya* and *śruti* except that it renders its knowledge still more authentic by replacing the epistemological parameter of "heard," *śruta*, by the stronger epistemology of "seen," *dṛṣṭa*. *Prokta* discourse renounces a body of knowledge constituted earlier by someone else. Upaniṣads, etc., belong here. *Upajñāta* texts are systematizations of existing knowledge by another known thinker who however is not the source of this knowledge. *Kṛta* literally means "composed" and Pāṇini mentions as examples some imaginative compositions such as *Mahābhārata* and *Yayāti*. Pāṇini adds another new class of literature — the commentary literature,


Vāṅmaya
Śāstra (śāstra-jñāna)
Kāvya (kāvya-jñana)
Śāstra
Apauruṣeya
Pauruṣeya
Veda namely, Ṛg,- Yajur-, Sāma-, Atharvaveda (on the basis of *contents*, Vedas have two portions, *Brāhmaṇa* and *Mantra*; on the basis of *expression*, Vedic statements are of two kinds, *sāma* and *yajus*)
Vedāṅga namely, *śikṣā*, *kalpa*, *vyākaraṇa*, *nirukta*, *chanda*, *jyotiṣa*
Alaṅkāraśāstra ⇧
Purāṇa (including itihāsa)
Ānvikṣikī (logic)
Mīmāṁsā (analysis/ interpretation)
Dharmaśāstra (sociology)
Kāvya vidyā ⇧
Kāmaśāstra (erotics), Śilpaśāstra (architecture), Arthaśāstra (polity), Vārtā (agriculture, animal husbandry, trade and commerce) These were proposed to be added to the list of *vidyās*

(a)

(b)

Note 1: *Itihāsaveda*, *Dhanurveda*, *Gandharvaveda* and *Āyurveda* are accepted as *Upavedas*.
Note 2: The universe of a *śāstra* includes the primary *sūtra* text and the cumulative commentaries of the following kinds:

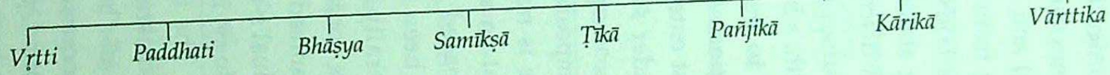

Vṛtti
Paddhati
Bhāṣya
Samīkṣā
Ṭīkā
Pañjikā
Kārikā
Vārttika

fig. 1

vyākhyāna. Finally, there is available in the tradition a three-fold classification of statements: *prabhu sammita, suhṛda sammita, kānta sammita.* First, we have statements that have the status of laws — such are the statements of science. Their language and meaning both are inviolate. Statements in *śruti* literature belong to this class. Next, we have the statements whose actual words are not so important as the (intended) meaning. Such are the statements of a well-wisher in which case it is the *bhāva* (the intended meaning) that matters. The assertions of *itihāsa-purāṇa* have that status. Third kind of statements are of imaginative compositions — ideas are fancifully conceived and the language is charming and the statements are not to be weighed for their accuracy or profundity — "I shall pluck stars from the sky and decorate your bodice," says the young lover. It is the craft or archedness in the suggestion or in the expression or in the idea itself that is of interest.

IV

It is also important to note that there has been uninterrupted reflection on philosophy, nature and character of knowledge in the Indian tradition. Knowledge is not seen as one undifferentiated entity. Depending on what its object is and depending on what effect it has on people, knowledge is classified into sub-sets. Thus, distinction is made between knowledge of the non-perceptible reality, *jñāna* and, what is conventionally understood by "knowledge," an awareness of facts of the perceptible world, called *vijñāna.* Three-fold distinction is further made between:

(i) *sāttvika jñāna* of non-difference, of one imperishable principle equally present in all, *akṣara-Brahman;*

(ii) *rājasika jñāna* of many existences of various kinds as apart from one another, of multiplicity and difference; and

(iii) *tāmasika jñāna* which clings to one body, to self, as if it were whole and which is irrational, has no real object and is trivial.

Advaita-Vedānta also distinguishes between *nitya* (constant) and *anitya* (variable) knowledge. Knowledge generated by *vṛttis*, powers of the mind, that is senses, in the form of sensory cognitions is *anitya,* variable and is likely to change. But knowledge gained experientially in the self is *nitya,* constant. As we noted in the very beginning, there has been a long and continuous reflection on the question of knowledge in the Indian history of ideas and a number of schools, competing schools of thought, have taken well-defined positions on this question. But the awareness that there are various kinds of knowledge and that they require different epistemologies runs like a thread through them. We have already said that Advaita-Vedānta makes a distinction between constant (*nitya*) and variable (*anitya*) knowledge and asserts that knowledge exists as a quality of the self as it is the self which is the knower and it is the same self which takes the form of knowledge in the presence of the object of knowledge.

Ādi Śaṅkara talks of *viśuddha jñāna* (purified knowledge) which is isolated from senses and located in the self. He also sets up an opposition between *jñāna* (knowledge) and *karma* (action) saying that action (*karma*) leads only to *sattva-śuddhi* (purification of instrumentalities). Some Advaita thinkers later sought to transcend *jñāna-karma* opposition[16] and talked of *jñāna-karma-samuccaya*, totality of knowledge and action. The Jaina thought also makes a distinction between *pratyakṣa jñāna* which is knowledge present to the self (*ātma sāpekṣa*) and *parokṣa jñāna* which is present to the senses and the mind (*indriya-mana sāpekṣa*). The Nyāya contribution is to postulate validity as a parameter of kinds of knowledge. They distinguish between knowledge based on memory (*smṛti*) and knowledge based on experience (*anubhava*) which is then sub-classified as either *yathārtha* (valid) and *a-yathārtha* (non-valid).[17]

Almost all schools discuss the question of "valid knowledge." The Buddhist thinkers talk of two kinds of means of knowledge that generate two different kinds of knowledge — *grahaṇa* produces knowledge of form/appearance while *adhyavasāya* produces the knowledge of attributes. These two categories correspond only roughly to the Nyāya categories of non-determinate (*nirvikalpa*) and determinate (*savikalpa*) knowledge (*jñāna*).[18] *Vijñānavādīs*, the materialist school of Buddhist thought, acknowledges the reality of objects of knowledge saying that "*vijñāna* itself appears like the external object . . . and is sufficient for acknowledging the independent existence of the objects." Mīmāṁsā sets up an opposition between knowledge and action and says that one is entitied to knowledge of the self (*ātma-jñāna*) only after renouncing action (*karma*). At the same time the one desirous of knowledge has to pass through action, as action purifies the cognizing self (*citta-śuddhi*). The Vaiśeṣika system posits mind as the great, necessary but not sufficient instrument of knowledge. It talks of knowledge of external objects and of internal objects (*sukha, duḥkha*). While different senses are needed for external objects, mind (*mana*) must be the instrument of that inner sense that grasps/experiences internal objects. An important Vaiśeṣika claim is that knowledge is sequential (*kramika*) and not simultaneous (*yugapat*). Thus, a man watching flowers, listening to music and feeling the smoothness of the table experiences sequential grasp and not one that is simultaneous in time. This points to the concept of *ekāgratā* (one point focusing of the mind) as the condition of valid knowledge.

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[16] *The Bhagavad-Gītā* too transcends it when it says that all action ends in knowledge (4.33).

[17] The question of "valid knowledge" is discussed by almost all schools.

[18] Broadly grammarians (*vaiyākaraṇas*) do not accept *nirvikalpa jñāna* and Buddhist schools do not accept the existence of *savikalpa jñāna*.

It is the *Bhagavad-Gītā* which then integrates all the insights available in the tradition and then proceeds to organize a philosophy. We have already noted how it argues that *jñāna* (knowledge), *karma* (action) and *bhakti* (devotion) are deeply imbricated with each other and are not really in opposition to each other. While specific references to *jñāna* (knowledge), are dispersed over the whole text,[19] chapter 4 is an intensive meditation on knowledge and its contents are described as *jñāna-yoga.*

The second kind of *jñāna* consists in the ability to discriminate between *sat* (true/right) and *asat* (false/wrong) (*BG*, 5.16), between *kartavya* (duty) and *akartavya* (non-duty or what one ought not to do) (*BG*, 4.41). It also consists in the awareness of what is (*tattva jñāna*) (*BG*, 13.12) and of object (kṣetra) and subject (*kṣetrajña*). This knowledge enables self-control (*BG*, 4.27), stabilizes consciousness (*BG*, 4.23), destroys the opposition between the self and non-self (*BG*, 4.23), and carries one like a raft through the rapids of this worldly life (*BG*, 4.36).

This knowledge variously called *adhyātma-jñāna, viśuddha-jñāna, nirguṇa-jñāna* or simply *jñāna* (in opposition to *vijñāna*) arises in the individual self and, therefore, each individual constitutes it in/for himself. This explains the intellectual freedom of an average Hindu — he has an autonomous self. This knowledge is for his liberation, his own happiness. Wisdom born of this knowledge kindles his self-control (*BG*, 4.28). Pursuit of this knowledge becomes a self-discipline, *svādhyāya*, and after obtaining this knowledge, one sees the entire creation first within own self and then in the divinity that suppresses all existence (*BG*, 4.35). Like blazing fire, it turns all actions to ashes, that is, actions cease to affect the doer (*BG*, 4.37). There is no purifier as great as knowledge, and it rids the knower of all impurities of thought and deed (*BG*, 4.38) and all his doubt born of ignorance is torn to shreds (*BG*, 4.41.42).

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[19] Apart from 4.10-42, please see 3.32, 39, 41; 5.16, 17; 6.8, 46; 7.2, 16-18; 9.1, 12, 15; 10.4, 11, 38; 13.2.

This is *Bhagavad-Gītā*'s *jñāna-yoga* or *jñāna-mārga*, the discipline or path of knowledge.

V

How does one characterize the Indian knowledge tradition?

In Indian thought, there being no imperative of One Given Truth, a plurality of "truths" is allowed. While allowing for the fact that some truth is always there, the Indian thinkers are sceptical about the possibility of accessing or recognizing it. They allow therefore "several/multiple paths" to truth. The great differentia of world-views, of ontologies and epistemologies stems from this foundational principle. There is no requirement, therefore, to conform and the individual is not subjected to the societal or the communal.[20] Faced with immense variety and multiplicity so characteristic of Indian geographical and social reality, the Indian mind has concluded that the highest form of knowledge is the knowledge of Oneness of all, *abheda* (of non-difference), of transcending the opposition between the Self and the Other(s). But this *ekatvabuddhi* (synthesizing intellect), is not in opposition to the different points of view — *ekatvabuddhi sarvavada avirodhinī*. Further, the goal of knowledge is not promotion of man's material comfort but the enhancement of mental and physical well-being of all, a position finally and decisively articulated by Lord Buddha in seeking *nirvāṇa* of all the suffering humanity rather than one's own, individual *nirvāṇa*. Knowledge thus has never been divorced from justice. In fact, it has always been imbricated with ethics, with the dominant ethical value of *dharma*. All disciplines of knowledge, vidyā, have this social-ethical imperative.

It is significant, we had noted in an earlier study,[21] that in the Western tradition, "knowledge" has been held as opposed to innocence, and associated with "power" that leads to the Fall of man. What is common throughout the Western history of ideas is the man-centered world-view. In the middle ages, God is the object of study for the sake of man, for his Redemption. Renaissance onwards, focus shifts to Nature as the object of study for the sake of man. It is interesting that a marked adversarial axis has always been obtained between the Western man and his object of study. It is almost as if man is always threatened by or is at the least in the presence of an adversary which has to be subdued or neutralized or used in the interest of man. While through the Middle Ages, God entered into this adversarial relationship with man — seeking obedience from him, punishing him, (*Old Testament*, Deuteronomy, 4.10, 43.) now Nature becomes the great adversary and the new knowledge, Science, is put to service to bend Nature to man's purpose. In the nineteenth century it is man or a class of men against man or a class of men in the Class-war Marxist doctrine and now in the twentieth century it is woman against man. The Hebraic man-centered view which subordinates everything to man's comfort is the obvious foundation for this conflict model which informs practically all the Western disciplinary codes — sociological, economic, political and is at the heart of the Darwinian evolutionary thought as well.

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[20] Thus, after explaining all the issues involved in the need to fight the Mahābhārata war, a presentation of the societal/communal point of view, one may argue, Kṛṣṇa leaves it to Arjuna to take the final decision. See, *Śrīmadbhagvad-Gītā*, 18.63.

[21] *Knowledge, Individual and Society in Indian Traditions*, Saini Memorial Foundation Lecture, Panjab University, Chandigarh, 2002, (monograph).

Knowledge is an instrument of power in this conflict model, an instrument to handle the "adversary." In the *Old Testament*, we have already noted, man is given "dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth. . ." (Genesis, 1.26). The Western man has been granted this dominion and treated it as a matter of his right to maintain and extend this dominion. Therefore, at the Renaissance, the whole project of knowledge is to bend nature to man's purpose, his purpose being to achieve life of comfort, something that has been promised to him by his God as a birthright. This explains the rise of sciences and the retreat of Christian ontology before the advancing empirical science which rendered much of Christian dogma indefensible and led finally to the collapse of faith with drastic intellectual and spiritual consequences for the Western Christendom in the nineteenth century.

"Knowledge" in this paradigm is exteriorized — constituted in the empiricist mode through the senses and stored *outside* the mind in the "texts" that have or acquire societal authority. The individual is its passive recipient and user. Its power consists in the control it exercises over and the conformity it extracts from the individual. And as the Western history shows, this "organized" knowledge has often proved destructive. Its power rests in the authority of "truth" it attains through societal and institutional support. At a given time in the Western history, there has always been a dominant "truth" of the time. This is the consequence of the Hebraic monistic imperative — "man" in the humanist phase, "language" then and "science" now. There is in the Western mind, a monistic imperative — a "truth" at a time. Between the dichotomies, only one is true and has to be cognized and then adhered to.

This imperative is driven by the uncompromising monism of the Hebraic world-view.[22] In sum, the goal of knowledge is the gaining and exercise of "power." Its consequence is not always happy — in more fundamental terms, it leads to Fall which is tantamount to loss of freedom. Its categories (particularly metaphysical) are linguistic constructs but they are assigned "value"/"truth" through "legitimation" which in the case of such categories does not/cannot come from experience, but comes instead from outside itself and outside the individual who "knows." Such legitimation comes from some major belief-system, a master narrative, say religion or science or aesthetics or ethics. In this structure, the individual has neither any role nor freedom (to evaluate for himself the validity of these categories of thought) as he is subjected to the societally exercized imposition of "belief."

In the Indian thought system, the function/goal of knowledge is not exercise of power over others but power over one self, *mokṣa,* liberation of the self from its own limitations/constraints. The direction of governing thought is the exact opposite of what pertains in the Western framework. The movement is from the individual to the social/collective — a continuum; not, from the social to individual in a relationship of rupture or tension. It is to be noted that while in the Western framework, knowledge is an exercise of power over the individual, to bind him and to fetter his mind, in the Indian framework, knowledge (*jñāna*), is an instrument of liberation of the individual not from just the superficial, external societal constraints of a collective code, but from the very fundamental, inner, existential constraints of his own mind and self. This is true freedom, the inner freedom. The goal of knowledge in the Indian tradition therefore is so very different — it is to promote the freedom of the individual.

Of course, what constitutes "freedom of the Individual" in our thought has to be clearly understood. Indian knowledge systems, specifically Sāṅkhya, define *mokṣa* as liberation from *duḥkha*; suffering, — suffering here and now. Is this a purely individual salvation at the cost of social well-being? No because the question of knowledge has always been discussed/located in an ethical framework[23] that is accepted by all systems of thought. It is a very widely used conceptual structure and one that again is present in the language of ordinary speakers of almost all Indian languages. It concerns the goals of all human effort — happiness or avoidance of pain/suffering. Two of these ends pertain to worldly pursuits, *artha* and *kāma*, and most of the life, much too often gets restricted to these two. But these ends are bracketed in this framework by two ethical imperatives — *dharma* and *mokṣa*. If these brackets are absent or are removed, life degenerates into a mere worldly pursuit of desires and as such may end in failure and frustration.

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[22] The Post-Modernists argue that there is no one "truth," or truth at all. This is ultimately an argument for plurality and/or nihilism and accords to a greater degree with the Hindu assumption.

[23] *Dharma, artha, kāma, mokṣa* (righteousness, material goals, worldly desires and liberation) form all this. The post-modernist return to ethics may be recalled here.

But above all this ethical framework establishes the continuum between the individual and the society. For true individual freedom, the only goal has to be *mokṣa*. So the individual seeks/pursues his *mokṣa*. But the instrument or means of *mokṣa* is Knowledge. But what kind of Knowledge? That which promotes *dharma*, which the *Mahābhārata* defines as that which promotes the general welfare of mankind. So the individual has to seek knowledge that promotes, what the *Bhagavad-Gītā* calls, *loka-saṁgraha* (*BG*, 3.20), the collective well-being. Knowledge informed by *dharma* binds the individual and the society.

Knowledge that is argued to be the means of *dharma* is understandably an altogether different paradigm from that of "knowledge" that is an instrument of power in the Western tradition. "Knowledge" in this tradition is not a synonym for information, is not sensory in its source and is not an instrument either for promoting man's comfort or for enabling him to exercise power over Nature and men. This "knowledge" is the knowledge of the indeclinable verities, of what it means to be a human being, a good human being, a knowledge that is rooted/sourced in deep meditation on the nature of human condition, a knowledge that seeks to promote "happiness" not comfort and a knowledge that enables man to free himself (from the narrow bounds of his own small self) rather than to limit the freedom of the other.

It is also to be noted that contrary to the popular impression, knowledge in India is not, and has not been, a repository of the few. Along with the learned, scholarly tradition, there has always been a parallel popular tradition of narration and exposition of texts, the *kathā-pravacana paramparā*, which has all through mediated between the learned tradition of the texts of learning and the ordinary masses. Even Ādi Śaṅkarācārya, one of the greatest minds, besides composing numerous intellectual texts was also a *pravacanakāra*, a popular expounder, who travelled through the length and breadth of India addressing village congregations and explaining to them and sharing with them his understanding of Advaita Vedānta.[24] Similarly, Śrī Rāmānujācārya expounded for twelve years in Tamil, the people's language, his Viśiṣṭādvaita philosophy in the village of Melkote near Mysore. There is strong reason to believe that the great, learned commentaries originated in such popular expositions.

This also explains the presence of illustrations and analogies, *upamā* and *dṛṣṭānta*, borrowed from the activities of day-to-day ordinary life of the people — from the universe of ornaments, cooking, family-relationships and obligations. Even in Indian logic, the third step in the five-step syllogism, *udāharaṇam* (a real life example), is the applied example that binds logic and life together "and it is characteristic of India's practical outlook and its practical conception of proof . . ." (Heimann, 1994: 86-87). The two parallel traditions are thus very closely linked with each other — they mutually enrich each other and necessarily contribute in equal measure to the development of thought through processes of paraphrase, explication, verification, falsification, illustration, etc. The effect has been that in India, contrary to the popular propaganda, knowledge is neither a privileged discourse nor a discourse of the privileged. A definite proof that knowledge is not esoterically held and is not a prerogative of the few (elite?) is present in the fact that the learned vocabulary of Indian thought is today a part of the ordinary language of the people. Words such as *jaḍa, cetana, jīva, ātmā, saṁsāra, dhyāna, kṣamā, dayā, maitrī, karuṇā, aṇu, jñāna, jñānī, citta, buddhi, pratyakṣa*, are present today as ordinary worlds in all Indian languages. Not only terms of philosophy, even technical terms, *sañjā*s, such as *vṛddhi* and *guṇa* of gammar are high frequency words in the ordinary speech of the speakers of almost all Indian languages. Even the conceptual propositions as maxims are part of the ordinary thinking of the people. It is not just a question of words being present — it is a matter of ideas being still alive. It is also an example of what may be unequivocally termed as the true democratization of thought in India. This democratization makes knowledge a civilizational value in India.

VI

What are the assumptions, models and methods of Indian Knowledge Systems?

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[24] In a personal conversation with Śrī Śaṅkarācārya of Sharda Peetha, Śṛṅgerī, it was confirmed that in the seventh century apart from the fact that Sanskrit was a very widely understood language, the Indian speech.

The first thing to note is the constructivist dimension of Indian thought. At one time in its intellectual history, from 1000 BC to almost AD 600, the Indian mind, it appears, was deeply involved in empire-building, both of the *terra firma* and of the *terra cognita.* Few cultures can show such wide ranging, structured systems of ideas in almost all spheres of human life as was witnessed in India during this long phase. This system building has left behind a great stock of ideas and has deeply impacted the Indian mind and made it naturally reflective and ideational.

We are also able to isolate some of its founding assumptions, the *drivers.* Indian thought systems support a kind of pagan pluralism and make plurality a ground reality of Indian intellectual life. This contrasts sharply with Hebraic monism and monotheism. A certain synthesizing universalism is closely related to, and facilitated by, this pagan pluralism. It also implies *inclusive* individualism, in which all are included as against the *exclusive* individualism of the nineteenth-century Europe. This also explains why the Indian thought looks upon *bheda buddhi,* (difference), as a form of ignorance, *avidyā* and upon *bheda* (difference), as an epistemological rather than as an ontological category.

Again, the Indian thought rests on cyclicity as against the Western linearity. This means that Indian thought does not operate with the principle of evolution, does not believe that with the passage of time, progress takes place. The direction of human change is towards decay rather than progress suggesting the imperative of constantly struggling for perfection or goodness. This also explains why Indians are so sceptical about the concept of development. Also, the Indian mind operates not with pre-X-post apparatus but with the configurational model.

The Indian knowledge systems show remarkable tolerance for the other, the *pūrva pakṣa,* which is always represented in the tradition of disputation, *vāda paramparā* with great deal of truth and accuracy before it is contested. This tolerance also takes the form of respect for both the earlier and the dissenting thinkers. This also explains why the Indian thinkers, including the most original among them, all disclaim originality. Also it is very clear that they all aim at happiness, not comfort, and enable a harmony between man and man and between man and nature.

Next we note three facts pertaining to methods and models. Indian mind has often searched for a single explanatory construct for multifarious reality and experience — *Brahman* in philosophy, *Śabda-Brahman* in grammar and *rasa* in aesthetic experience. Its dominating model of analysis has been Advaita, a system that is at the root of European structuralism via Ferdinand de Saussure. Also the knowledge systems have sought and found validation through a strong, attested tradition of disputation. Further Indian systems are empirical and their final authority is *loka*.

Finally the movement of Indian thought has been in a direction opposite to that of the Western thought — it has moved from concrete to abstract, from materialism to idealism, from Cārvāka to Vedānta, from *prekṣaka* to *sahṛdaya* in literary thought, and from *dhvani* to *śabda-Brahman* in grammar.

Above all, note the great eclecticism of the Hindu mind — at the end of the second *kāṇḍa* of his *Vākyapadīya*, Bhartṛhari says, "Mind acquires critical acumen by interacting with the other traditions. What does he know, who knows only his own tradition?" A beautiful thought but sadly today, with our systems of knowledge having been marginalized and excluded from the mainstream education, we have to ask — "What does he know who does not know his own tradition?"

References

Aurobindo, Sri, 1997, *India's Rebirth*, Paris: Institut de Recherches Evolutives and Mysore: Mira Aditi, 1 ed., 1993.

The Bhagvad-Gītā (BG).

Bhartṛhari, *Vākyapadīya*.

Heimann, Betty, 1994, *Indian and Westren Philosophy. A Study in Contrasts*, London: George Allen and Unwin, 1937, First Indian Edition from Delhi: Aman Publishing Company, pp. 86-87.

Kapoor, Kapil, 1994, "Texts of the Oral Tradition," *Language, Linguistics and Literature : The Indian Perspective*, Delhi, Academic Foundation.

———, 1998, *Literary Theory : Indian Conceptual Framework*, Delhi: Affiliated East-West Press.

———, 2000, "Vyāsa Paramparā, Text renewal Mechanisms, Max-Müller and European Scholarship" in *Max-Müller and Contemporary European Scholarship*, Ramakrishna Mission, Kolkata.

———, 2002, *Knowledge, Individual and Society in Indian Traditions*, Chandigarh: Saini Memorial Foundation Lecture, Panjab University, Chandigarh, (monograph).

2

Amara-Bhāratī

Sanskrit and the Resurgence of Indian Civilization

M.D. Srinivas

The Greater India Encompassed by Sanskrit

DAṆḌIN the great Sanskrit poet and scholar (seventh century) declared:

> *saṁskṛtam nāma daivīvāk anvākhyāta maharṣibhiḥ.* — *Kāvyādarśa*, I.32
>
> Sanskrit is the divine language as expounded by the ancient sages.

Around the same time, I-tsing,[1] the renowned Chinese Buddhist Monk, records:

> Even in the Island of Pulo Condore (in the south) and in the country of Suli (in the north), people praise the Sanskrit Sutras [of Pāṇini]; How much more than should people of the Divine Land (China) and the Celestial Store House (India), teach the real rules of the language.

The Island of Pulo Condore is off the Vietnam coast in South-East Asia and the country of Suli is Sogdiana, the region surrounding Samarqand, in Uzbekistan of Central Asia. It is said that I-tsing stayed in the capital of Śrīvijaya (present-day Palembang, in Sumatra of Indonesia) for six months in AD 671 to learn Sanskrit Grammar. He then proceeded to India where he spent fourteen years. On his return journey he spent several years at Palembang so that he could translate the large number of Indian texts that he had collected. He mentions that the *Buddhacarita* of Aśvaghoṣa was as popular in South-East Asia as it was in India. He also recommends that other Chinese Buddhists proceeding to India should break journey in Śrīvijaya, for obtaining the necessary training in Sanskrit and Indian *ācāra* as there were more than a thousand monks in Śrīvijaya who "lived by the same rules as those prevailing in India."

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[1] I-tsing, *A Record of the Buddhist Religion as Practised in India and the Malay Archipelago*, tr. by J. Takakasu, Oxford 1896, p. 169. Note that India was referred to as the Celestial Store House (of Wisdom) by the Chinese scholars.

While the Central Asian regions were soon to lose their Indian cultural moorings, the capital of the Sumatran kingdom remained a centre of [Indian] learning for several centuries. We have for instance,

> another Chinese source, recording that in 1017 envoys from thence brought bundles of Sanskrit books, folded between boards. The active pursuit of Indian learning is, further, also shown by the existence of texts dealing with grammar, prosody and lexicography, part of which have, though unfortunately in a more or less corrupted form, been handed down to us.[2] — Gonda: 181

This extraordinary phenomenon of "Greater India" or "Further India" encompassing a large part of the Asian continent, where Sanskritic learning and public discourse flourished for several millennia, has baffled most of the modern scholars. Commenting on this, an American scholar[3] remarks:

> The spread of Sanskrit happens not only with extraordinary speed over vast space, but in a way that seems quite without parallel in world history. . . . What is created in the period that covers roughly the millennium between 200 or 300 and 1300 (when Angkor is abandoned) is a globalized cultural formation that seems anomalous in antiquity. It is characterized by a largely homogeneous political language of poetry in Sanskrit along with a range of comparable cultural and political practices (temple building, city planning, even geographical nomenclature) throughout it . . . a common, a Sanskrit culture. — Pollock, 1998a:12

In many regions of South-East Asia this culture continued to flourish for several more centuries, and the vestiges of this culture can be seen all over South-East Asia even today.

Saṁskṛtam and the Bhāṣās

Another issue that continues to be an enigma for modern Indological scholarship is the symbiotic relation that has been maintained through the

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[2] J. Gonda, *Sanskrit in Indonesia*, 2nd edn., New Delhi, 1973, p. 181. Gonda is here citing the Chinese *History of the Sung Dynasty*.

[3] S. Pollock, "The Cosmopolitan Vernacular," *J. of Asian Studies*, 57, 1998, p. 12. An earlier paper on this by Pollock is titled, "The Sanskrit Cosmopolis 300-1300" and appeared in J.E.M. Houben, ed., *The Ideology and Status of Sanskrit*, Leiden, 1996, pp. 197-247. What seems to be particularly intriguing to Pollock and other scholars is the fact that this globalization of Sanskrit culture was achieved without any imperial political conquest, colonization or religious proselityzation.

Indian history between the so-called "cosmopolitan language," Sanskrit, and the "vernaculars" or the regional Indian languages.[4] Around the time when Daṇḍin was extolling *saṁskṛtam* as the *daivī-vāk* in Tamil Nadu, there was indeed a great efflorescence of Tamil literature. The great Tamil devotional corpus of the Vaiṣṇava Āzhvārs (the *Divyaprabandham*) and of the Śaiva Nāyanamārs (the *Tirumurai*), were universally accorded the scriptural status of the Veda. The renowned Vaiṣṇavite Ācārya Śrī Nāthamuni (eighth century) declares:

> *namāmyahaṁ drāviḍavedasāgaram*
>
> I bow to the great ocean of Tamil Veda.

The Āzhvārs themselves sang of Śrīman Nārāyaṇa as being both *Vaḍamozhi* (Sanskrit) and *Tamizh-inbappa* (Tamil blissful song).[5] The tradition of *Ubhayaveda* incorporating both the Saṁskṛta-Veda and the Tamil-Veda became a fully established philosophical doctrine from the time of Śrī Rāmānujācārya (eleventh century). In *Ācāryahṛdayam*, a major philosophical treatise of Śrī-Vaiṣṇavism written in the *Maṇipravāḷa* style,[6] Śrī Azhagiya Maṇavāḷa Perumāḷ Nāyanār (fourteenth century), declares in *Ācāryahṛdayam*, *sūtras* 39-41:

> *vedam bahuvidham.*
> *idil saṁskṛtam drāviḍam engira pirivu rigādi bhedam pole*
> *sentiratta tamizh engaiyāl agastyamum anādi*
>
> Vedas are several.
> The distinction between Sanskrit and Draviḍa Vedas is like that between *Ṛk*, *Yajus*, etc.
> Since the Āzhvārs have declared Śrīman Nārāyaṇa to be *Sentiratta Tamizh* (expressive Tamil), the language of Agastya (Tamil) is also eternal.

Apart from the Tamil *Divyaprabandham* and *Tirumurai* which were regarded as Veda, there are indeed several great devotional works which have been accorded a similar status in Kannaḍa (*Vacanas* of Vīraśaiva saints), Marāṭhī (*Jñāneśvarī* of Sant Jñāneśvar), Awadhī (*Rāmacaritamānas* of Goswāmī Sant Tulasīdās), etc., apart from *Śrī Guru Grantha Sāhib* venerated by the Sikhs.

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[4] Indeed, use of the terms "Cosmo-polis" (the realm of citizens in the Greek city state or of the Roman "free-men") and "Vernacular" (the language of "Verna" the Roman household slave) are totally inappropriate in the Indian context.

[5] *Antamizhinbappāvinai avvaḍamozhiyai* (Kulaśekhara Āḷvār, *Perumāḷ Tirumozhi*, 1.4). Similarly, we have Tirumaṅgai Āḷvār singing: *Sentirattamizhosai vaḍasollāki* (*Thiruneḍundāṇḍagam*, 4).

[6] A style where Tamil words are interspersed with Sanskrit words even as ruby (*maṇi*) and coral (*pravāḷa*) are strung together in a necklace. There is a large corpus of Tamil *Maṇipravāḷa* literature, and similar *Maṇipravāḷa* style is found in Kannaḍa, Telugu, Malayāḷam and even Javanese works.

Some of the great Indian *bhāṣās* such as Tamil and Kannaḍa, developed technical literature in *Vyākaraṇa, Alaṅkāraśāstra, Jyotiṣa, Āyurveda*, etc., by ninth century, and when the regional polities emerged from around eleventh century, these, as well as many other regional languages such as Telugu, Marāṭhī, etc., also became the languages of inscriptions and political discourse. But at the same time it was widely recognized that Sanskrit was the language of pan-Indian discourse. The Tamil savant Senāvaraiyar (thirteenth century) in his commentary on the ancient Tamil grammar *Toḷkāppiyam*,[7] states:

> *vaḍasol ellātteyattirkum poduvāgalānum*
>
> Sanskrit indeed is common to all the countries.

Modern scholars have not yet comprehended the symbiotic growth of Sanskrit and regional languages in the Indian tradition, as they are generally stuck with the models of rise of "vernacular" in Europe (at the expense of Latin) during the onset of European modernity. In this context it has been noticed:

> Late medieval Europe and India differ profoundly on the question of language multiplicity. In the former, multilinguality is tainted with the guilt of diversity: Babel marks an original sin, and European cultural politics in early modernity can arguably be interpreted, at the level of language, as a project of purification. India by contrast . . . never mythologized the need to purify, let alone sought to purify, original sins of diversity through a program of purification. . . .
>
> Indian vernacular cultures demonstrate little concern of Herderian "uniqueness" over which national cultures of the present obsess. On the contrary, all strive for a kind of equivalence by their approximation to Sanskrit cosmopolitanism.
> — Pollock, 1998b: 1-4

It has also been noticed that most of the discussion on the growth of regional Indian languages is based on facile and wrong explanations, even though they seem to be universally accepted:

> . . . A number of received views about vernacularization of this world [India] are reproduced that have gone uncontested too long. Like every other scholar

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[7] Senāvaraiyar, Commentary on *Tolkāppiyam, Solladikāram*, 9.5. Somewhat earlier, the twelfth-century poet Śrīharṣa from Kānyakubja, in his epic-poem *Naiṣadhīyacarita*, describes how people from various countries who had gathered in Damayantī's *svayaṁvara*, communicated with each other in Sanskrit (*Naiṣadhīyacarita*, X.34).

> who has written on the issue, Kaviraj[8] ties the "gradual separation of [the] emerging literatures [of the vernacular languages] from the high Sanskrit tradition" to "religious developments," indeed religious developments hostile to the tradition, against which the vernacular literatures make an "undeclared revolution." "The origin of vernacular languages appears to be intimately linked to an internal conceptual rebellion within classical Brahmanical Hinduism."
>
> In fact, there is precious little evidence to support these generalizations, universally accepted though they are. There is of course no denying that some relationship may be found between language choice and religious practice in South Asian history. . . . But by the beginning of the second millennium this relationship is much etiolated. Sanskrit had long ceased to be a Brahmanical preserve, just as Brahmans had long taken to expressing themselves in literary languages other than Sanskrit, such as Apabhraṁśa or indeed Kannaḍa. — Pollock, 1998a: 29

Sanskrit Knowledge Systems on the Eve of Colonialism

A third issue confronting the modern Indological scholarship is the growing evidence for a flourishing intellectual tradition in India, which seems to have continued well into the period of colonial rule. The standard Indological view has been that:

1. The Indian intellectual tradition, embodied in the various *śāstras*, had died long ago or had become totally outdated by the time of British conquest of India. In any case, the entire tradition is of no relevance for the concerns of modern India.
2. The stagnation suffered by the Indian intellectual tradition, has nothing really to do with colonial rule and is entirely due to the methodological weakness inherent in the Indian thought and the decadent Indian social organization which has inhibited the growth of knowledge.

Recently the National Endowments for Humanities and the National Foundation of Science of the United States of America have funded a major project to study the *Sanskrit Knowledge Systems on the Eve of Colonialism*. The project involves about a dozen leading Indologists in the United States and Europe; and envisages extensive collection and analysis of published and unpublished texts written during 1550-1750, mainly in the disciplines of

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[8] Pollock here is citing the work of Sudipta Kaviraj, "The Imaginary Institution of India," in Partha Chatterjee and Gyanendra Pande, eds., *Subaltern Studies VII*, Delhi, 1993, pp.1-39.

Vyākaraṇa, Mīmāṁsā, Nyāya, Alaṅkāraśāstra, Dharmaśāstra, Jyotiṣa, Āyurveda and *Mantraśāstra*. The proposal also envisages fieldwork around four centres of classical learning in India to understand the dynamics of networking and diffusion of knowledge in the Indian scholarly communities. The details of the proposal, the experts who would participate, the work-plan for the period 2001-04, and the Institutions in India whose cooperation is being sought, etc., are available, along with some of the theme papers and reports of ongoing work, on the website of the Digital South Asia Library of the University of Chicago (http://dsal.uchicago.edu/sanskrit). The basic pre-supposition of the project is that:

> The two centuries before European colonization established itself decisively on the Indian subcontinent (CA 1550-1750) constitute one of the most innovative eras in Sanskrit intellectual history. Thinkers began to work across disciplines far more intensively than ever before, to produce new formulations of old problems, to employ a strikingly new discursive idiom and present their ideas in what were often new genres of scholarly writing. Concurrent with the spread of European power in the mid-eighteenth century, however, this dynamism began to diminish. By the end of the century, the tradition of Sanskrit systematic thought — which for two millennia or more constituted one of the most remarkable cultural formations in world history — had more or less vanished as a force in shaping Indian intellectual life, to be replaced by other kinds of knowledge based on different principles of knowing and acting in the world.
>
> — http://dsal.uchicago.edu/sanskrit/proposal:1

The proposal goes on to highlight that modern scholarship has been totally silent on how there was an "explosion of intellectual production in Sanskrit in the seventeenth century;" and it has not paid any attention to the "demise of [these knowledge systems] in the latter half of the eighteenth century." The proposal emphasizes the need to collect, collate and study all the relevant Sanskrit source texts in order to address these important issues. It also evokes the need for fresh theorization, as the "interpretations dominant in Western historical sociology and intellectual history, little changed from the time of their strongest formulation in Max Weber nearly a century ago, are based more on assumptions than on actual assessment of data" (Proposal cited above 3). However, the proposal does offer its own perspective on the "comparative intellectual history of Europe and India:"

> Stressing the historical fact of the victory of Western learning indicates the importance this project gives to a comparative intellectual history of Europe

> and India. . . . In these two worlds, systematic thought had run along a largely parallel course for about two millennia, until the seventeenth century. Even into the eighteenth, points of comparability can be found. . . .
>
> Yet it was at this historical juncture that a great divergence between the two traditions occurred, as a set of important changes in the production and dissemination of knowledge began to manifest themselves in late-Renaissance and early-Enlightenment Europe. This is a long familiar list, which includes new procedures in method (empiricism), new kinds of conceptualization (quantification), new attitudes towards the past (critical rationalism), new communicative codes (the intellectualized vernacular) . . . and last but not the least, a pedagogical revolution. Little that is comparable appears to have occurred in the world of Sanskrit intellectuals. Consider again only the fundamental question of language . . . Sanskrit remained the sole idiom for most major forms of systematic thought. No Bengali Descartes or Gujarati Bacon was concerned to teach the vernacular to speak philosophically. And like the language of learning, the material and social composition of the Sanskrit intellectual sphere remained largely unchanged.
>
> Although we may as yet be unable to specify exactly when or where or how, it is likely to have been such innovations in the European knowledge systems that, once colonialism made them the systems of India, more than anything else spelled defeat for the Indian forms. — Proposal cited above 3

The "death of Indian knowledge systems" is not in any sense a new theme for Indological scholarship. The reason that the issue is surfacing again in the above proposal is because it makes a somewhat radical departure from the conventional view that the Indian knowledge systems died long ago. This departure had become necessary, in fact overdue, because of the mounting evidence that, in almost every scholarly discipline, the Indian tradition suffered a setback only after the onset of colonialism, or much later. However, the present project proposal is just an updated version of the conventional viewpoint that the decline in Indian intellectual tradition was entirely due to its own internal inadequacies.

Further, the proposal seeks to introduce a new twist to the historiography of Indian knowledge systems by singling out the period 1550-1750, as having witnessed a new resurgence in scholarship. Many of the theme papers prepared in association with the project also follow suit in identifying this period as one of the most creative periods of Indian history. The proposal itself makes the usual qualification that these "chronological boundaries . . . are themselves subject to revision" (Proposal 6). It notes that 1550 is chosen in recognition of the work of Raghunātha Śiromaṇi the renowned Naiyāyika of Navadvīpa in Bengal and Appayya Dīkṣita the great Vedāntin of south India, who was also an expert in several *śāstra*s. The date 1750 is related to the demise of the great Vaiyākaraṇa Nāgeśa Bhaṭṭa, who died in Vārāṇasī in 1755.

The date 1550 is of particular political significance in Indian history as it corresponds to the consolidation of the Mogul rule under Akbar. One has to indulge in extraordinary sophistry to discover this as the point of departure for ushering in a period of great creativity in Indian intellectual tradition. Raghunātha Śiromaṇi the great Naiyāyika was carrying forward the tradition of Navya-Nyāya initiated by Gaṅgeśa Upādhyāya in early fourteenth century. The Prakriyā tradition in Vyākaraṇa was initiated by Rāmacandra in his *Prakriyāsarvasva* (fourteenth century). New trends in *Jyotiṣa* emerged in the works of Mādhava (fourteenth century), Parameśvara (1380-1460) and Nīlakaṇṭha (1450-1550) in Kerala. Sāyaṇa's monumental commentaries on the Vedas and several major works on Vedānta, Mīmāṁsā and Dharmaśāstra were produced in the Vijayanagara Empire in the fourteenth century. It would indeed be strange to pick up mid-sixteenth century as a starting point of a new resurgence in Indian intellectual tradition unless one is exclusively looking for those innovative elements, which could have resulted by the efforts of the Mogul court. Perhaps the investigations under this project are supposed to do that only.

There is another invidious claim, made in the project proposal that the Indian intellectual tradition "retreated in silence" in the face of "vociferous" criticism offered by modern Western knowledge:

> Direct confrontation between Indian and European learning was as rare as that between Sanskrit and Persianate scholarship during the previous three centuries. Or better put, the confrontation was one sided; As modernizing Europe attacked vociferously, Sanskrit India retreated in silence; no shastri ever bothered to answer the critique, made so painfully explicit by Macaulay and his compatriots in the century following our epoch. — Proposal: 2

The fact of the matter is that most of the Indian *śāstra*s were founded on the technical and philosophical foundations provided by the disciplines of Nyāya (logic), Vyākaraṇa (language analysis) and Mīmāṁsā (hermeneutics). The technical and philosophical sophistication achieved by the Indians in these disciplines were beyond the comprehension of European thought till at least the end of nineteenth century. As one scholar has remarked:

> Acquaintance with the Pāṇinian analysis of root and suffixes and his recognition of *ablaut* (though only indirect via Ch. Wilkin's Sanskrit Grammar) inspired Franz Bopp and others to develop the imposing structure of Indo-European comparative and historical linguistics. The generality of phonetic and morphophonemic rules was rigidly established only in the last decades of the nineteenth century; at about the same time the notion of "becoming" gave way to that of substitution. A purely grammatical description of language and a formalized set of derivational strings are hotly debated issues today. It is a sad observation that we did not learn more from Pāṇini than we did, that we recognized the value and the spirit of his "artificial" and "abstruse" formulations only when we had independently constructed comparable systems. The Indian New Logic (Navya-Nyāya) had the same fate: only after the Western mathematicians had developed a formal logic of their own and after this knowledge had reached a few Indologists, did the attitude towards the Navya-Nyāya school change from ridicule to respect.
>
> — Scharfe, 1977: 115

What else could the *paṇḍits* do but to retreat in despair when they were confronted by what were clearly ridiculous arguments and claims of the Indologists, who could not comprehend the methodology of the Indian *śāstras*, but nevertheless had the backing of an imperial power behind them?

Though the onset of British rule had a totally debilitating effect on the Indian intellectual tradition, great *śāstric* works continued to be written for a fairly long time, in fact, almost well into the middle of the nineteenth century, in most disciplines. The Kerala work on *Jyotiṣa* continued right into the first half of nineteenth century with the work of Ghaṭigopa and Śaṅkaravarman. The Oriyā Astronomer Candraśekhara Sāmanta carried on his own observations and worked out many improvements in astronomical computations, which he presented in his treatise *Siddhāntadarpaṇa* written in 1869. A recent history of Indian medical literature lists a large number of major treatises and many more tracts on particular topics, which were written during the eighteenth and nineteenth centuries (Meulenbeld, 2000). In Navya-Nyāya, major *kroḍapatra*s were written by Kālīśaṅkara Bhaṭṭācārya and Paṭṭābhirāma in the first half of nineteenth century. Many important treatises and commentaries in Nyāya, Mīmāṁsā and other *darśana*s were produced during the whole of nineteenth century and later.[9] In the sphere of literature, we have the great epic poem *Śivarājavijaya* written by Ambikādatta Vyāsa in 1870, apart from several other *mahākāvya*s written in the nineteenth century.

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[9] See for instance, K.H. Potter, *Encyclopaedia of Indian Philosophy*, vol. I, 3rd edn., Delhi, 1995. Amongst the 1962 authors listed in the Encyclopaedia (whose dates are known), who wrote treatises on different *darśanas*, over 600 authors are dated to be posterior to 1750.

In fact, any assessment of Indian intellectual tradition and its historical development would be very tentative unless a comprehensive analysis is made of the enormous number of unpublished manuscripts lying in various libraries and private collections.[10] The compilation, copying, study and analysis of the great manuscript wealth of India is indeed a gigantic task yet to be accomplished.

The Alleged "Death of Sanskrit"

Amongst the theme papers of the Sanskrit Knowledge Systems Project, is a paper with the provocative title, *The Death of Sanskrit* (Pollock, 2001: 392-426) written by the leader of the Project team, Prof. Sheldon Pollock[11] (Pollock, 2003). In this paper, which seems to be in a lighter vein in comparison to some of his other scholarly works, Pollock asserts that notwithstanding the various measures initiated and implemented by the Government of India since Independence and the recent intensive efforts "in the age of Hindu identity politics (Hindutva) inaugurated in the 1990s by the ascendancy of the Indian peoples party (Bharatiya Janata Party) and its ideological auxiliary the World Hindu Council (Viswa Hindu Parishad)", "most observers would agree that, in some crucial way, Sanskrit is dead." (Pollock, 2003: 392-93). The reason why the "death of Sanskrit" has so far not been so clearly announced is because much of modern scholarship had wrongly presumed that Sanskrit was never really alive:

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[10] It is estimated that the manuscript wealth of India is of the order of 3.5 million, of which about 1 million are in collections which have been catalogued. About 2 lakh Indian manuscripts are in libraries outside India. A bibliometric analysis of about 22,000 Tamil manuscripts (see the *Union Catalogue of Tamil Manuscripts*, vol. 5, Tamil University, Thanjavur, 1991), reveals that about a third of them relate to philosophy and religion, a third to literature and another third to various *śāstra*s. Perhaps this is also true of the Indian manuscript wealth in general.

[11] George V. Bobrinsky Professor of Sanskrit and Indic Studies, University of Chicago. Incidentally Prof. Pollock has concluded a project on Literary Cultures of South Asia for the National Endowments for the Humanities during 1995-2000. Much of his work on the "Sanskrit Cosmo-polis" and "Vernacular Millennium," cited earlier, has been done as a part of this project. The project has led to an overview of the medieval and early modern South Asian literature by a group of seventeen scholars and has been published as S. Pollock, ed., *Literary Cultures in History: Reconstructions from South Asia*, Berkeley, 2003.

> . . . The assumption that Sanskrit was never alive has discouraged the attempt to grasp its later history; after all what is born dead has no later history. As a result there exist no good accounts or theorizations of the end of the cultural order that for two millennia exerted a trans-regional influence across Asia — South, South-East, Inner and even East Asia — that was unparalleled until the rise of Americanism and global English. — Pollock, 2003: 393

Thus the global cultural order dominated by Sanskrit for over two millennia is comparable only to the emerging global cultural order dominated by English and Americanism. The later order, everyone would agree, is not even a century old and is likely to be seriously contested in the coming decades.[12]

We shall not go into a discussion of the arguments in Pollock's paper.[13] Much of it is a restatement of the contention that the Indian *śāstric* tradition, though very active in the pre-colonial era, could not stand up to modern European power and knowledge and more or less ceased to exist by *c.* 1800. To buttress this up, Pollock looks into a mélange of issues: the decay of Sanskrit literature prior to the establishment of Muslim rule in Kashmir in the thirteenth century; the failure of the Vijayanagara empire to revive Sanskrit literature; the brief infusion of modernity into Indian intellectual traditions in the seventeenth-century Mogul court; and the decadent state of indigenous education as observed in the early nineteenth-century colonial Bengal. Presumably, all this discussion is to throw light on the cultural, social and political factors internal to Indian society which nurtured Sanskrit and were also eventually responsible for its alleged death.

Towards the end of the paper Pollock evokes some similarities between the status of Latin with the onset of European modernity and that of Sanskrit in India. However he does emphasize "that the differences between the two are equally instructive:"

> For one thing, Sanskrit literary culture was never affected by communicative incompetence, which began to enfeeble Latin from at least the ninth century. The process of vernacularization in India, in so many ways comparable to

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[12] This is perhaps the larger political context for the project on the Sanskrit knowledge systems and the pronouncements on the "death of Sanskrit."

[13] For a refutation of some of the points made in Pollock's paper, see J. Hanneder, "On The Death of Sanskrit," *Indo-Iranian Journal*, 45, 2002, 293-310. Hanneder also notes: "Pollock has over-interpreted the evidence to support his theory, perhaps in his understandable anger over current nationalistic statements about Sanskrit and indeed new attempts at re-Sanskritization."

> the European case, was no where a consequence of growing Sanskrit ignorance; the intellectuals who promoted the transformation, certainly in its most consequential phases, were themselves learned in Sanskrit. . . . The specific conditions for the death of Sanskrit have therefore to be located in South Asian historical experience. — Pollock, 2001: 417

Pollock then comes up with a concluding observation:

> During the course of this vernacular millennium, as I have called it, Sanskrit, the idiom of a cosmopolitan literature, gradually died, in part because cosmopolitan talk made less and less sense in an increasingly regionalized world. — Pollock, 2001: 417

What was this regionalized world? In fact, the British rule led to the establishment, after a long time, of a trans-Indian polity, but there was no place for Sanskrit in it. Sanskrit and the Indian intellectual tradition survived and even flourished, though under great stress, during the centuries of Turko-Afghan and Mogul rule in large parts of India, even though there was no trans-Indian polity that subscribed to the ethos of Indian civilization. However, the onset of British rule saw the establishment of a trans-Indian polity that encompassed the entire sub-continent, but a polity that was totally hostile to Indian civilization and sought to subvert it by every possible means. And this left very little "cosmopolitan space" for the intellectual tradition of India as enshrined in the great *śāstric* literature of Sanskrit.

Amara-Bhāratī

The Indian nationalist movement in the twentieth century led to a great resurgence of the Indian languages, both in education and public life. It also generated an all round awareness and respect for the Indian civilizational heritage, especially the great corpus of classical literature of India. When the issue of official language was debated in the Constituent Assembly, there was a considerable body of opinion that suggested that Sanskrit be made an official language of the Indian Union.[14] In the final Constitution that was adopted, Hindī in the Devanāgarī script, was declared the official language of India with the stipulation that it should draw upon Sanskrit as the primary source to enrich its vocabulary. Sanskrit was also included among the languages recognized by the Eighth Schedule of the Constitution.[15]

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[14] About twenty-eight members Constituent Assembly did voice such an opinion (see G. Austin, *The Indian Constitution: Cornerstone of a Nation*, Oxford, 1966, p. 301). Amongst them were Dr. Bhim Rao Ambedkar and also a Muslim member, Naziruddin Ahmed.

In October 1956, the Government of India appointed a Sanskrit Commission under the Chairmanship of the renowned linguist Dr. Suniti Kumar Chatterjee, to "consider the question of the present state of Sanskrit Education in all its aspects." In its Report presented in 1958, the Commission presents a survey, revealing the state of Sanskrit in India.

It reported that there were 1381 *pāṭhaśālās* and *mahāvidyālayas* in Uttar Pradesh with 4462 teachers. There were 1320 *tols* in Bengal, 305 in Bihar and 146 in Orissa. There were 112 *pāṭhaśālās* in Madhya Pradesh, 88 in Mysore and 32 in Andhra Pradesh. The Travancore-Cochin State had 47 Sanskrit Schools. The Commission also found that in Uttar Pradesh almost all the schools had provision to teach Sanskrit; in Bihar, Sanskrit was compulsory up to the IXth Standard; more than 75 per cent of the school students in Bengal studied Sanskrit. Sanskrit was a compulsory subject for all the students in the Benares Hindu University and the Lucknow University. The Report also listed the important University Departments and Research Institutes engaged in Sanskrit research.[16]

The Commission made detailed recommendations on Sanskrit education both in the traditional and the modern streams, on various measures to be taken to promote Sanskrit research, etc. It also addressed itself to the issue of "Sanskrit and the aspirations of Modern India" where it referred to the role of Sanskrit in awakening "national self-consciousness" and "national solidarity." The Commission recommended that Sanskrit should be declared an additional official language of India. It also noted:[17]

> The place of Sanskrit in maintaining both the cultural and political unity of India is like that of the Chinese system of writing in preserving the cultural and political unity of China. In China, virtually there is not one language but a number of languages, all coming from a single ancient Chinese speech, but they are generally described as "dialects." The fact of their really being

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[15] See Articles 343(1) and 351 of the Constitution of India. The Eighth Schedule listed fourteen languages at the time of adoption of the Constitution. Four more languages have been added subsequently.

[16] See *Report of the Sanskrit Commission 1956-1957*, Delhi, 1958, pp. 27-67.

[17] This fact that Sanskrit which has been a language with a single spoken form that has been written in many different ways, and Chinese which is a language with a single written form that is spoken in many different ways, have both in their own way contributed to the unity of these civilizations, has been widely noted.

> languages and not dialects (in *Han* or Chinese-speaking China) is obscured by the great factor of the Chinese system of writing. The modern Chinese languages may differ from one another profoundly in pronunciation as well as recent grammatical developments, but the fact that the written language consisting of characters . . . is understood everywhere, is a great link which binds up most remote corners of China into a single cultural unit. Any attempt to replace the Chinese system of writing by a strictly phonetic system, whether of Chinese or foreign origin, is likely to lead to a cultural and political disintegration of China. Therefore, in China they have accepted the position that a few years of hard labour must be put forth by Chinese boys and girls in acquiring some thousands of characters of their language which constitute the most obvious, the most potent and virtually indispensable expression or symbol of Chinese unity.
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> — The Report, 1950: 82

The Commission reported that in the course of its interaction with diverse sections of Indian society it noted a deep sense of disappointment that not much had been done for the revival of Sanskrit. The Commission cites an old verse that many Sanskritists referred to in this connection:

> *rātrirgamiṣyati bhaviṣyati suprabhātam bhāsvan udeṣyati hasiṣyati paṅkajaśrīḥ* ।
> *itthaṁ vicintayati kośagate dvirephe hā hanta hanta nalinīṁ gaja ujjahāra* ॥

> The night will pass and the bright day will dawn; the sun will rise and the lotus will bloom in all its beauty — while the bee, imprisoned in a closed bud, was pondering over its future, alas, an elephant uprooted the lotus-plant itself.

The situation of Sanskrit in India, nearly a half century after the review by the Sanskrit Commission, makes us recall the same verse; for the Indian society had great expectations that we would soon re-establish Sanskrit and the Indian intellectual tradition in all their glory in Independent India. This remains a dream for future. The current status of Sanskrit learning is not all that dismal, as may be seen from the following report by a well-known Sanskrit activist:[18]

> There are eight Sanskrit Universities, 93 Sanskrit departments in various Universities, 200 Sanskrit PG centres, 800 Sanskrit colleges, and 5000 Sanskrit schools in India. In seven states Sanskrit is taught as a compulsory subject at

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[18] Chamu Krishna Sastry, "Problems of Sanskrit Teaching in India," in D. Prahladachar, ed., *Relevance of Sanskrit in the Contemporary World*, Tirupati, 2001, p. 139. In another paper included in this volume, A.R. Mishra reports that in the twentieth century more than 1000 literary works were produced in Sanskrit of which nearly 300 are *mahākāvya*s (*ibid.*, p. 103).

> upper primary and secondary levels. . . . In six other states though Sanskrit is not a compulsory subject, 90 per cent of students at upper primary and secondary levels are opting for Sanskrit. There are 3 crore students studying Sanskrit at various levels. There are six lakh students in traditional Sanskrit schools. The total number of Sanskrit teachers at all levels is nearly eight lakhs. . . . There is an active Sanskrit teaching programme at graduate and post graduate levels in more than 450 universities outside India.
>
> — Sastri, 2001: 139

Independent India has seen an even greater revival of all the Indian languages. They have fully re-established their perennial links with their ancient literary heritage and Sanskrit, and have largely come on their own. But the same is not true of the world of Indian learning which is yet to re-establish its links with the great intellectual tradition of India.

Saṁskṛtam indeed is *Amara-Bhāratī*, eternal language,[19] like the timeless *sanātana* civilization of India. An awakened India is well aware that demise of *Saṁskṛtam* would mean the end of Indian civilization. It has to respond to the challenge that resurgence of Indian civilization depends crucially on revitalization of *Saṁskṛtam*.

References

Austin, G., *The Indian Constitution: Cornerstone of a Nation*, Oxford, 1966.

Gonda, J., *Sanskrit in Indonesia*, 2nd edn., New Delhi, 1973.

Henneder, J., "On The Death of Sanskrit," *Indo-Iranian Journal*, 45, 2002, 293-310.

I-tsing, *A Record of the Buddhist Religion as Practised in India and the Malay Archipelago*, tr. by J. Takakasu, Oxford 1896.

Kaviraj, Sudipta, "The Imaginary Institution of India," in Partha Chatterjee and Gyanendra Pande, eds., *Subaltern Studies VII*, Delhi, 1993.

Meulenbeld, G.J., *A History of Indian Medical Literature*, 4 parts, Groningen, 1999-2000.

Pollock, S., "The Cosmopolitan Vernacular," *Journal of Asian Studies*, 57, 1998.

———, "Indian in the Vernacular Millennium Literary Culture and Policy, 1000-1500," *Daedalus*, 127.3, 1998b, 1-34.

———, "The Sanskrit Cosmopolis 300-1300" and appeared in J.E.M. Houben, ed., *The Ideology and Status of Sanskrit*, Leiden, 1996.

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[19] We may recall that the great sage Paramacharya Sri Chandrasekharendra Saraswati Swamiji, 67th Shankaracharya of Kanchi Kamakotipeetham, had initiated a movement called *Amara-Bhāratī* to revive instruction of *Saṁskṛtam* amongst children. Sri Mahadeva Iyer, the father of Sri Jayendra Saraswati Swamiji, the present Shankaracharya, was asked to organize this movement initially.

——— (ed.), *Literary Cultures on History: Reconstruction from South Asia*, Berkeley: University of California Press, 2003.

———, "The Death of Sanskrit," *Comparative Studies on History and Society*, 43(2), 2001, 392-426.

Potter, K.H., *Encyclopaedia of Indian Philosophy*, vol. I, 3rd edn., Delhi, 1995.

Report of the Sanskrit Commission 1956-1957, Delhi, 1958.

Sastry, Chamu Krishna, "Problems of Sanskrit Teaching in India," in D. Prahaladkar, *Relevance of Sanskrit in the Contemporary World*, Tirupati, 2001.

Scharfe, H., *Grammatical Literature*, Wiesbaden, 1997.

Part II
Indian Knowledge Systems and Science

3

Educating Sciences of Life and Mind

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Nature and Consciousness

In our current ideas of science, modern physics occupies a central place. We tend to think of it as the hard core of exact knowledge, where science is at its most scientific. And so we tend to think that other sciences must be made more like modern physics, to make them truer and more scientific.

But there is a problem here, because modern physics is a specially restricted science, with its own kind of limitation. It achieves its exactness at the cost of a special restriction in its method and its scope. The restriction is that modern physics is tested and applied through a technology of materially constructed instruments and machines, which are made accurate by material measurements and specifications carried out through our external bodies. Accordingly, in its field of observation and application, modern physics is inherently restricted to an external world of objects that we observe and interact with, indirectly, through material instruments.

By this restriction, our experience is divided into two parts: objective and subjective.

- The objective part is an impersonal world, where modern physics is applied, through its technology of material instruments and machines.
- The subjective part consists in our sensual and mental personalities, through which the world is perceived.

Here, for every individual, the subjective part of experience is a knowing person, with personal faculties of body and mind. And the objective part is a known world. Thus, knowing is identified as personal. And a more impersonal knowledge is developed through material instruments that are used to achieve external objectives in the world. This is the modern physical approach, used by modern physics and the many branches of science that are based on it.

However, in this physical approach to science, subjective investigation is inherently ruled out. Since it is here identified as personal, no room is allowed for it to get past the partialities of personality and thus to get more scientific. Accordingly, a rather different approach is needed, in order to consider how a subjective knowing may become more impartial and more scientific.

In fact, there has long been such an approach, from much before the development of modern physics. And many old sciences are based on it. In that old approach, the objective part of experience is conceived more broadly. It includes not only the external world, but also our conceiving minds. It is thus the realm of all activity, both physical and mental. In English, we use the word "nature" to describe this realm of functioning activity. In Sanskrit, it is called *prakṛti*.

When our minds conceive of an external world, it is an artificial construction, conceived by minds that it excludes. It does not show itself to us, but needs the addition of our senses and our minds in order to show up in our experience. By contrast, the idea of "nature" points to a complete functioning which includes the world and the faculties of sense and mind that produce all the appearances in everyone's experience.

So, in this broader conception, nature shows itself, containing all the activities that make it function. It manifests itself, spontaneously, always of its own accord, motivated from within. This spontaneity is what makes nature natural. It is not interfered with or driven artificially, from the outside, by any instrument that is left out of its consideration.

When nature is conceived like this, all instruments and faculties of personality are taken into it. Here, they belong to the objective part of experience. They are part of what is known, quite distinct from that which knows.

Thus, with all physical and mental faculties included in objective nature, what's left is a pure consciousness entirely detached from personal activities. That consciousness is in the end impersonal and actionless. It has in it no trace of physical or mental personality, nor is it mixed with any physical or mental actions. All actions, carried out by any instrument, belong to objective nature, which gets illuminated by the knowing light of consciousness.

That light is not an act which consciousness puts on. Instead, to shine with knowing light is the very being of subjective consciousness. By its mere presence, always unengaged in any changing act, it illuminates all the appearances that nature shows, in everyone's experience.

Here, in this old conception of nature and consciousness, the objective part of experience is described as the *doing* of nature. And the subjective part is described as the *knowing* of consciousness. This is a division of experience into doing and knowing.

- *Doing* is the action of an instrument, which is itself an object of some other such action. Such actions occur in the realm of a completely objective nature, producing all phenomena, both physical and mental, throughout all space and time. Everything that appears — no matter in whose experience, neither where, nor when — is here conceived to be produced by the same objective nature, acting in the outside world and in each personality.
- *Knowing* is the actionless illumination of a purely subjective consciousness, which is not an instrument or an object of any action. That consciousness is self-illuminating in itself, in its own being. By its mere presence, as it is, in everyone's experience, it lights each one of the appearances that come and go. Its actionless illumination is thus conceived to light the show of changing happenings that nature manifests, no matter where or when perceived.

In this conception, knowing is inherently impersonal, at the inmost centre of personal experience. That centre is at once subjective and impersonal. But it is surrounded by mental and physical activities of personality, which obscure its impersonal and actionless illumination. It thus appears confused with personal activities, and it seems compromised by their partialities. This is our outward view of it, seen through our personalities.

In Sanskrit, the central essence of a person is called *puruṣa*. It is described in the *Bṛhadāraṇyaka Upaniṣad* (2.5.18).[1]

sa vā ayaṁ puruṣa	That which is within all bodies
sarvāsu pūrṣu	is in truth, this *puruṣa*.
puriṣayaḥ. . .	For, in the body, it abides at rest.

Thus, *puruṣa* is that which lives in personality, at the centre of a person's physical and mental activities. It lives there quite unmoved and undisturbed, as an unmixed consciousness whose knowing is quite unattached to anything that's known. There is in it no mixture with our physical and mental personalities, whose actions it illuminates. Accordingly, it is an impersonal core of subjective knowing, found at the centre of our lives, as our minds and bodies carry out their actions in the world.

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[1] The translations in this essay are rather free, each giving only one of the many possible ways in which the old texts may be translated.

This conception opens up the use of subjective investigation, in scientific disciplines that seek to know things more impartially. By reflecting inward, a subjective questioning can get progressively detached from partialities of personal perspective; thus seeing things more deeply and more clearly, from a perspective found by going deeper back, towards the inner core of personality. Here, knowledge is refined and deepened by a process of inward detachment, progressing towards a subjective centre where our knowing is essentially impersonal. Thus, by going deeper back into our lives and minds, we tap resources that enable us to see and do things better.

Energizing Life

However, an inward search for knowledge does of course present us with a tricky question. Having gone back in, how does one come out again? How does an inner knowing get applied, in the world that we perceive outside?

This question is answered by the idea of "life." Very simply, life is how consciousness becomes expressed, through nature's functioning. We experience that expression in our living bodies, particularly when we speak. Then, as we speak, breath flows and vibrates, so as to produce the meaningful appearances of spoken sound. Thus, through a vibrating flow, of breath that rises from within, consciousness becomes expressed in speech.

In many old conceptions, the flow of breath producing speech is used as a metaphor for the expression of consciousness in nature. In Sanskrit, the energy of that expression is called *prāṇa*, which means both "breath" and "energy." The energy of *prāṇa* is conceived as flowing and vibrating in a subtle way, like breath, so as to show us meaningful expressions of consciousness, appearing in the outside world.

In this idea of *prāṇa*, energy is treated as essentially alive. But its life is not just personal. For the consciousness expressed by it is not a personal activity, confined to the personalities of any living creatures. Instead, that consciousness is actually found present everywhere. For it illuminates each one of the appearances that nature manifests, in all experiences of the manifested world. As actually experienced, by anyone, wherever nature manifests, consciousness is present there, illuminating what appears. It thus extends throughout all nature's manifesting of the world.

This provides a comprehensive description of experience, as a process with two aspects complementing one another. Nature is the manifesting aspect, producing all appearances through physical and mental action in the world. Consciousness is the illuminating aspect, lighting each appearance by its presence through them all. And *prāṇa* is the energy that drives the whole process of manifestation, by expressing consciousness in the appearances that nature manifests.

In the minds and bodies of living creatures, consciousness is personally expressed, by personal activities of our limited and partial faculties. But, in nature as a whole, the expression is impersonal, through universal principles of nature's ordered and intelligible functioning. Thus nature has a universal life, expressed through natural principles of purpose, meaning and value that we understand reflectively. We understand them by reflecting back into our own experience, where they are found as well.

In that reflective understanding, we go beneath all physical and mental faculties, to an inmost depth of experience where no personality remains. It is from there that the living energy of *prāṇa* rises, expressing consciousness in all of nature's functioning, both in our personalities and in the outside world.

Thus *prāṇa* is an energy that acts from underlying consciousness. It does not act from any object or from any faculty of personality. All faculties and objects are its instruments, which it produces as it rises from beneath them, expressing consciousness through their activities in nature's functioning.

In the external world, *prāṇa* is conceived to behave in a way that has some similarity with the energy of modern physics. Here, material objects are conceived as concentrated or coagulated patterns of dynamic energy. Through our crude, unaided senses, we see these patterns as gross objects, with boundaries separating them in space and time. But, beneath their gross appearance of bounded separation, they are essentially interconnected, by subtle vibrations and radiations of fluctuating energy. All objects are conceived to be made up of subtle particles, described by the Sanskrit word *aṇu*. Somewhat like quantum particles, *aṇu*s are not just small pieces of gross matter. Instead, they are tiny elements of dynamic energy, organized in interconnected patterns of vibrating and radiating fluctuation. As it is said in the *Kaṭha Upaniṣad* (6.2):

yad idaṁ kiñ ca	The universe of changing things —
jagat sarvaṁ	whatever may be issued forth —

prāṇa ejati it is all found in living energy, whereby
niḥśritam. . . it moves and oscillates and shines.

But, beneath the similarity with modern physics, there is of course a crucial difference. The energy of *prāṇa* is alive. Both in our bodies and the world outside, it is a natural energy whose functioning expresses living purpose and meaning, from underlying consciousness. This living energy cannot be accurately known by looking out at its external forms and thereby controlling them, through our material bodies and their external instruments. To know it properly, it must be approached reflectively, through a reflective listening that harmonizes our living faculties with what they see outside themselves.

From the viewpoint of *prāṇa* (and other such notions in different traditions), the energy of modern physics is rather crudely objective. For, in modern physics, energy is measured through material instruments and described by mathematical calculations. Thus measured and described, it is controlled, again through material instruments, towards the achievement of external objectives. The trouble here is that a subtle energy is being measured and controlled by material instruments which are essentially cruder and more gross.

As quantum physics admits very explicitly, such crude material instruments interfere indelicately with what we know through them. So they can only give us an uncertain and discontinuous knowledge of the world. Thus, on the one hand, quantum systems are mathematically described as evolving in a perfectly definite and continuous way, when we do not measure them or interact with them through our instruments. But, on the other hand, this mathematically ordered certainty and continuity cannot be known properly through our crudely interfering and disturbing instruments, which can only measure and control things doubtfully and jerkily.

The calculations of quantum physics are of course extremely complex and sophisticated, and they can be very successful in a specialized kind of way. But to quite an extent, the mathematical sophistication is a convoluted way of managing an admitted crudity of our material instruments; and such convolution can only work partially, achieving some particular results here and there. It cannot properly make up for the underlying crudity that always undermines it.

For the problem comes inherently from leaving the measuring and controlling instruments out of a more subtle consideration that is applied to what they measure and control. The instruments of modern physics are not quantum specified. They are constructed and specified in a gross material way that is far cruder than the subtle mathematical precision which is used to describe undisturbed quantum systems. Thus left more crudely specified, such gross material instruments must have an inherently uncertain and jerky effect, in both reporting and disturbing the more subtle energy that they are meant to measure and control.

In the idea of *prāṇa*, as "living energy," the same problem of accuracy is differently approached. When energy is thus conceived, as essentially alive, its observation and control is essentially reflective, quite unlike the external observations and controls attempted through the material instruments of modern physics.

In order to observe the living energy of *prāṇa*, looking through material instruments is insufficient. There has to be a reflection back into the living energy in one's own personality. It's only by returning back into one's own living faculties that *prāṇa* can be seen and controlled, expressing consciousness in personality and world.

For *prāṇa* is an energy of inspiration, essentially including purposes and meanings and values that we perceive in persons, objects and events. It's only through some inwardly inspired sense of purpose, meaning and value that persons, objects and events are seen expressing consciousness. The energy of *prāṇa* is an inner inspiration that arises from underlying consciousness, found always present underneath each object and event, in everyone's experience. From there, each object and each happening spontaneously expresses consciousness, through the purpose and the meaning and the value that we see in it, as part of nature's functioning.

In this conception, nature's actions are all animated from within, by the inner inspiration of *prāṇa*'s living energy. Nature does not function like a partial person, driven by limited and changeable desires for some partial objects of external perception. Instead, the functioning of nature is inspired only for the sake of expressing an inner consciousness: which in itself remains unmoved and unaffected, through all of nature's changing acts. As the *Sāṅkhya-kārikā* puts it (in stanza 60)

nānā-vidhair	All qualities belong to nature,
upāyair upakāriṇy	as she acts in many ways:
anupakāriṇaḥ puṁsaḥ	not for the sake of objects gained,
guṇavaty aguṇasya	but serving only for the sake

satas tasyārtham	of that true inner principle
apārthakañ carati.	which has no qualities itself
	and is not moved by any act.

The inner principle is what Aristotle called the "unmoved mover."[2] It is the unmoved ground of knowing, present everywhere, beneath all experiences of personality and world. At that unmoved ground, there is no movement or activity; but all movement and activity arises up from there. And it arises naturally, not driven by any mental or physical instrument, but motivated by an inner inspiration that spontaneously expresses consciousness in everyone's experience.

That inner inspiration is the living energy of *prāṇa*. As it arises from the impersonal ground of consciousness, it functions naturally through the living purpose, meaning and value that we find expressed in nature's ordered and intelligible functioning.

And this natural functioning is not personal. It does not act partially, in order to achieve the limited objectives of some partial personality. Instead, the functioning of nature is essentially impartial, through an impersonal order and intelligibility whose purposes, meanings and values are in essence quite impartial and impersonal.

The trouble is that we see nature partially and personally, from our partial faculties of limited personality. That produces an appearance of living purposes and meanings and values which seem to be personal and partial. But this appearance is a misunderstanding of nature, according to the old idea of *prāṇa*, as "living energy."

In order to correct the misunderstanding, there must be a reflection all the way back into the inmost ground of consciousness. From there, the living energy of *prāṇa* functions naturally in what we feel and think and do and see, as attention goes out towards the world.

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[2] In *De Anima* (408b), Aristotle describes the unmoved mover as an inner principle of soul, of which we cannot rightly say that it "feels anger" or "thinks" or "weaves" or "builds" or is thus engaged in any personal act. "Not is it correct to say that the soul is itself moved, as in anger. It is even scarcely correct to speak of the soul as feeling anger. For this would be like saying that the soul weaves or builds. We should rather not say that the soul pities or learns or thinks, but that a person does so in virtue of the soul. And by this we would not mean that movement is ever *in* the soul. But rather, we should mean that movement is sometimes *from*, and sometimes *towards*, the soul." (Translation adapted from two sources: *Brett's History of Psychology*, ed. and abridged by R.S. Peters, George Allen and Unwin, London and Macmillan, New York, 1962; and *Aristotle: De Anima* (*On the Soul*) trs. Hugh Lawson-Tancred, Penguin Classics, London, 1986.

So, when an inward search for knowledge reaches fully back into the unmoved ground, there's nothing further to be done. There, at the inmost ground, it is meaningless to ask for some technology of action that is needed to apply what has been found. For, from there, all application is completely natural, in the spontaneous rising of *prāṇa* from its inmost ground.

However, if an inward search stops short, at some faculty of seeing, thinking or feeling, the situation is quite different. For then, we are at an intermediate level of experience, through which the external world is known. Here, our minds are engaged in a cultural and personal activity of taking information into our constructed pictures of the world.

This picturing activity of mind is inevitably partial and incomplete. Its constructed pictures do not naturally apply themselves. Instead, they need some further deliberation to apply them usefully. Their interpretation requires a deeper reflection back to underlying consciousness; and their application requires further technologies of partial action, narrowly restricted to prescribed objectives.

Mediating Mind

In the process of experience, as our minds construct their pictures of the world, *prāṇa* is the energy that animates the pictures. It makes them move and change, dynamically expressing the consciousness that continues underneath their moving elements and changing qualities.

Thus, consciousness is like a background screen, upon which changing pictures form. That screen is both self-animating and self-luminous. From it come both the energy that motivates its pictures and the light that shines through them. As the pictures form, they appear at the changing forefront of experience. But their motivation and illumination comes from the knowing light of underlying consciousness, which continues in the background.

Each object that appears is a pictured element, in some larger picture of the world. Because our minds are partial, they don't see everything at once. Instead, their attention focuses on limited objects, which appear and disappear. When an object appears, it is then at the forefront of a narrowing attention. But this attention draws upon a background understanding of the world, in which the object is a part. It's at the tip of the mind's attention that each object appears, in particular. But, beneath these particular appearances, the world as a whole is understood, at the background of experience.

As time proceeds, our minds go through a succession of passing states. In each state, a current understanding gets expressed, through feeling, thought and action that take attention out to some particular object. The object then appears perceived; and its perception carries meaning that next gets to be interpreted. So, each expression outwards gets followed by a reflection back in. As each object is conceived and interpreted, there is a reflection back — through the object's form, its name and its quality — to the underlying consciousness.

This cycle of expression and reflection is illustrated in *fig.* 1. The illustration shows our minds as expressing consciousness and reflecting back to it: through a series of intervening levels that rise from a broad base of subjective understanding to a narrow tip of objective attention. The knowing ground of consciousness is shown at the bottom of the diagram, below the horizontal line. Above the line are the activities of nature, including our minds and the objective world that they conceive. The world is shown appearing object by object, at the front tip of the mind's attention.

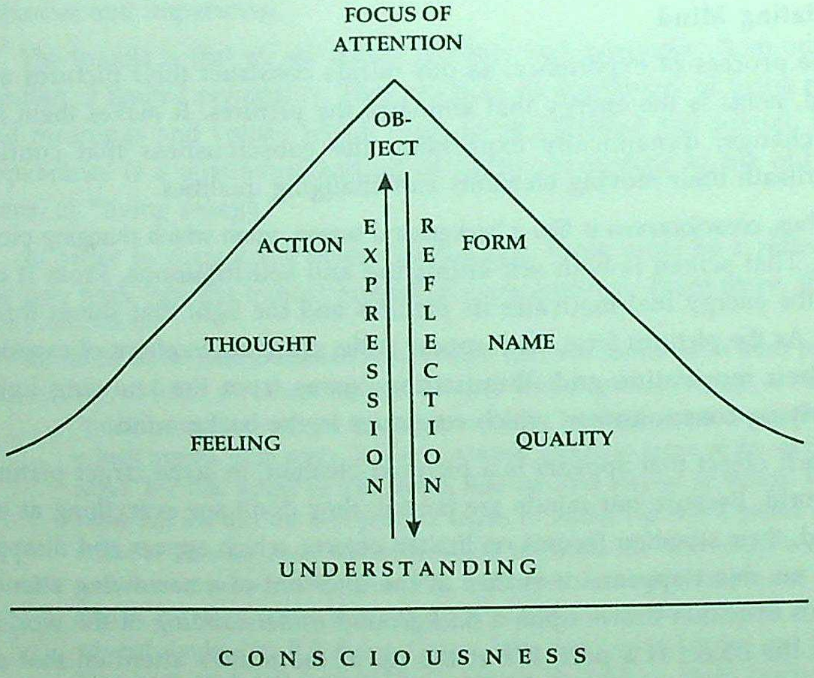

fig. 1

In the course of experience, the cycle of expression and reflection keeps repeating, through the various objects that we see. Each object is perceived through the attention that turns to it, thus expressing a current state of understanding in the perception that appears. Then, the perception is interpreted, thus taking it back to the underlying consciousness, where a new state of understanding results from the assimilated perception. From there, attention turns to other objects, making them appear perceived and assimilating their perceptions into background understanding. Through this repeating cycle of expression and reflection, our perceptions come into experience and get assimilated into knowledge, thus enabling us to learn.

In the process of learning, the world is conceived by relating objects together, into larger pictures. And objects are pictured in more detail by analysing their perception into smaller pieces, so as to construct more elaborated pictures of the world. The elaboration takes place at the objective level of meaningful experience. Here, an external world is seen to be constructed from elaborated picturing that shows and puts together various objects and events.

In Sanskrit, this objective level is called *vaikharī*, which means "elaborated." At this level, there is an outward articulation of words and symbols, describing the world's elaboration in each individual's experience. And it describes a changing world of perceived objects, in the macrocosm of the external universe. This is illustrated in *fig.* 2 at the top row beneath the column titles.

However, as symbols are formed and their meanings are interpreted, each individual experiences the world through a succession of mental states, which keep on passing by, in a flowing stream of perceptions, thoughts and feelings. From this microcosmic flow of individual mind, we experience a corresponding macrocosmic flow of happenings, through which objects take shape and convey meaning in the external universe. Here, nature is experienced as a manifesting flow, conveying meaning in the course of time. In Sanskrit, this manifesting level of experience is called *madhyamā*, which literally means "in between." In *fig.* 2, this manifesting level is illustrated in the second row, beneath the objective level of *vaikharī*.

Going further down, there is a third level, illustrated in the third row. It is what gets manifested, by the manifesting flow of mental states and nature's happenings. In Sanskrit, it is called *paśyantī*, which literally means "seeing." The seeing here is quiet. It is a pure insight at the depth of mind, detached from the noisy clamouring of competing perceptions at the surface. In the microcosm of individual experience, it is the silent insight of background understanding, stored quietly in the latent potentiality of assimilated attitude and character. In the macrocosm of the external universe, this latent store is the underlying regulation and harmony of nature, connecting different things together. Here, nature functions through a subtly intelligible order and causation, which we reflect upon intuitively, at the depth of understanding.

Level of experience	*Microcosm of individual experience*	*Macrocosm of the external universe*
Vaikharī ('elaborated')	Personal articulation of words and symbols	Changing world of perceived objects
Madhyamā ('in between')	Succession of mental states, through which symbols are formed and meanings are interpreted	Flow of happenings, through which objects take shape and convey meaning
Paśyantī ('seeing')	Quiet insight and latent potentiality, continuing at the depth of mind	Subtly intelligible order and causation of nature's functioning
Parā ('beyond')	Ultimate identity of knowing and being	

fig. 2

Finally, beneath the third level of pure insight, there is the ground of consciousness, where knowing and being are identical. In Sanskrit, that ground is called *parā* or "beyond." All appearances of mind and world arise from it; and then return to it, where they are utterly dissolved. In this sense, it is the ground reality of all experience, underlying every individual and the entire world.

But such a ground reality is not an object in the world. It cannot be identified objectively, as any pictured element or region in some objective picture of the world. It is always the subjective ground beneath the picturing. So it is not an object that any theory can describe. Nor can it be prescribed, as an object for achievement by some technology of application. It is beyond both theory and technology.

Calculation and Education

How then can such a ground reality be relevant to science? Its relevance must in the end be educational, beneath both scientific theories and their application through technology. In fact, technology is not the only way in which our theories and descriptions are applied. There is a more fundamental way, through education. For example, consider the use of a map, which pictures some territory where people may travel and go about the business of their lives. Such a map has two, rather different, kinds of use.

- One kind of use is objective and calculating. Here, the map identifies particular objects and enables a calculation of their locations. Thus it is used to specify objective destinations and to calculate effective instructions for travelling to them. "Go *n* miles in *x* direction and then *m* miles in *y* direction," and so on.

  This calculating use is essentially specialized and technical. Its instructions are effective only for the achievement of specifically limited objectives, through specialized instruments and techniques. For example, a map may be digitized and fed into a computer, for the purpose of guiding a missile to some military target; but this requires a highly technical specification of the target and the use of very specialized systems of instrumentation and delivery.

- The other way of using a map is subjective and educational. Here, the map expresses how a territory is viewed. And that enables an educational reflection upon the territory as a whole. For example, as one looks at a map, one may reflect upon the way that roads have to cross obstacles like hills and rivers and railway tracks; and such a reflection may lead to a better understanding of the overall lay of the land and how to negotiate one's way through it.

  This educational use is essentially integrating and intuitive. It puts things together by assimilating them inward, into an educated understanding. From there, future judgements may be called out intuitively, in response to particular situations. Such a response, of living judgement, is essentially less narrow and more flexible than any technical prescription calculated from some objective picture.

These same two aspects, of calculation and education, are found as well in scientific theories and descriptions. The calculating aspect is made scientific by externalizing it, in formal rules and standard instruments that work outside our personalities. This achieves an external impartiality, in the calculation of narrowly objective results that may be tested and applied by specially constructed machines.

However, for the educational aspect, there has to be a different approach to scientific impartiality. For education essentially requires an inner understanding that must somehow be detached from personal partiality. And that detachment is achieved by reflecting in, subjectively, beneath the outward surface of objective pictures. Such pictures are conceived through personality; and thus contain a personal element, which may be clarified through a reflective questioning. That questioning of current views, to clarify what may be false in them, is quite essential for scientific education. It's a reflective questioning, which enquires deeper back into subjective experience, to look for truer knowledge and better understanding.

Each of these two aspects has its own kind of reasoning. The reasoning of calculation is deductive. Through a conceived picture, it deduces observed results, from implicitly believed assumptions that the picture takes for granted. By contrast, the reasoning of education is inductive. It keeps reflecting back inductively: from particular results explicitly perceived, to more general principles implicitly interpreted in them. How we interpret what we see is thus open to repeated questioning, which can progressively keep re-examining and clarifying our living faculties of observation and interpretation.

In modern physics, scientific theories are tested and applied through their calculation of results, which are observed and utilized by material instruments. Accordingly, the role of education is confined to the conception and understanding of theories. The educated faculties of physicists do not directly apply their theories, but must calculate results for observation and application through material instruments. This is so because such educated faculties are not physically measured and controlled, as are the material instruments of modern physics. Our living faculties require a more subtle examination and regulation, which puts them outside the jurisdiction of modern physics and thus rules out their direct use in its properly restricted application.

But sciences of life and mind don't have to be restricted in this way. They can and do develop subtler ways of reflective enquiry and living management, which educate our living faculties as instruments of application. For example, in biology and psychology, medical and psychotherapeutic theories can clearly be applied through their living education of a doctor's diagnostic judgement and therapeutic ability.

From long before the use of modern physics, much older sciences have been applied primarily through educated faculties that they are used to cultivate in their practitioners. For, unlike modern physics, such sciences include within their scope a consideration of life and mind, conceived as expressing an underlying consciousness. Accordingly, they are able to consider a living and mental correspondence between each individual's microcosm of perceiving experience and the universal macrocosm of the world perceived at large.

Such a correspondence has often been mystically approached, through mystic states in which the powers of mind and personality are abnormally expanded. But that approach, of mystically expanded power, is not essential. There is a more direct approach, which is quite simply educational. The essence of the microcosm-macrocosm correspondence is just one of knowing.

In everyone's experience, the macrocosm of the world is always known microcosmically, through a perceiving microcosm of living and mental faculties. The world at large is never known directly, but only through its correspondence with a perceiving world of inner faculties. This is a normal fact of everyone's experience. All knowledge of the world essentially implies this microcosm-macrocosm correspondence. It's on this normal, ordinary fact that the old sciences are based, in their educating use of our living faculties.

Levels of Experience

By reflecting further in, the old sciences are meant to uncover deeper levels of experience, at which the world is more directly and accurately known. An illustration can be seen in the traditional five elements: called "earth," "water," "fire," "air" and "ether."

This is a very old conception, going back some thousands of years, in Indo-European traditions. Like many old conceptions, this one is somewhat metaphorical. And its meaning is open to a reflective questioning; so that it can be rather differently interpreted, in different contexts. But in general, it represents a division of experience into five levels of increasing subtlety, in our experience of the world. Each level is perceived through a corresponding layer of personality, progressing deeper in towards the subjective ground. In Sanskrit, these layers of personality are called the *pañcakośa*s or the "five sheaths." They provide a particular way of interpreting the five elements.

- The first element, *earth*, is perceived through the *annamaya-kośa* or the "covering of food." This is the outermost layer of personality. It is the external body, made of matter, like other objects seen outside by our gross senses. Here, "matter" is called "food," thus conceiving it organically. It is what gets consumed, as the body takes it in and uses it, in organic processes of living functioning. These processes are studied in old sciences of medicine, like *Āyurveda*.

As the body functions in the world, it takes in perception, as a kind of food. And this intake of perception is in particular morsels or pieces, through which material objects are identified. Thus perceived, through the external body, the element called "earth" appears. It is the "solid" element, found at the level of gross matter that is separated into different objects.

- The second element, *water*, is observed through the *prāṇamaya-kośa* or the "covering of energy." Here, the energy of *prāṇa* flows in resonating pathways of activity. In Sanskrit, these pathways are called *nāḍī*s or "channels." But their energy is not channelled nor activated by matter. It is not an energy of artificial force, exerted by one object upon another. Instead, it is a living energy that rises naturally from underlying consciousness. Thus by its very nature it expresses consciousness, through an intelligibly ordered functioning, in fluid patterns of transforming activity.[3]

  As the energy of *prāṇa* flows through personality, its patterns resonate in sympathy with each other and with the world outside, in a complex reciprocation of subtle influences and effects. That sympathetic resonance enables our living faculties to observe and interact with the world.

  Thus observed, through living faculties, the element called "water" is made manifest. It is the "fluid" element, found at the level of dynamic flow, in changing patterns of energetic happening. This dynamic functioning of subtly influential energy is studied in old sciences of ritual evocation, of astrology, and of *prāṇāyāma* or "living energy control."

- The third element, *fire*, is investigated through the *manomaya-kośa* or the "covering of mind." At this level, mind is the conceiving intellect, made up of thoughts which interpret the patterns of activity that our senses perceive. Thus interpreted, these patterns are conceived as meaningful information, telling us about an intelligible world.

  Here, as information is meaningfully represented, modern physics is confined to quantitative measurements and calculations of mathematical variables like distance, time, speed, mass, momentum and energy. But older sciences, like classical linguistics and aesthetics, go on to a broader and fuller investigation of language, thought and meaningful experience.[4]

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[3] See the previous section, "Energizing life" for more on *prāṇa* and its relationship with "energy" in modern physics.

As changing patterns are observed, we find in them a meaning that shows us something further in the world. They are then representing information; whose meaning burns it up for us, in order to illuminate what's represented. Through that burning illumination of meaning, we interpret more of the world, beyond the narrowness of partial circumstances that our senses have perceived. Thus interpreted, through conceiving intellect, the element called "fire" is made manifest. It is the "burning" and "illuminating" element, found at the level of meaningful information, which gives itself up to a further perception of represented things.

- The fourth element, *air*, is appreciated through the *vijñānamaya-kośa* or the "covering of discernment." This is our discernment of qualities and values, which we compare and contrast in the information that we perceive and interpret and describe.

  In modern physics, the comparison is strictly quantitative, ascribing a mathematical value to each point of space and time, and thus formally describing a mathematically abstracted "field." By contrast, the older sciences consider quality and value in a much fuller way, as a conditioning that we discern and judge intuitively, through inner feelings. There, the use of discerning reason is reflected back from formal and quantitative descriptions, externally applied.

  Thus, older sciences, like those of meditative psychology and ethics, are more essentially concerned with a systematic and reasoned clarification of our qualitative discernments. The application then is from within, from an inner sense of value that is inherently implied by motivating judgements of felt quality.

  As qualities are thus discerned, the element called "air" comes to be manifest, as a surrounding atmosphere of subtly felt and delicately judged conditioning. It is the "qualitative" element, found at the level of conditioned character that gets contrasted and compared in different and changing things.

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[4] As for example in the levels of meaning analysed in Sanskrit grammar (already illustrated in *fig*. 2), and in the *bhāva* and *rasa* analyses of Sanskrit poetics.

- The fifth element, *ether*, is quietly witnessed at the background of experience, through the *ānandamaya-kośa* or the "covering of happiness." This is the coordinating layer of personality, with the word *ānanda* or "happiness" implying harmony and integration. The co-ordination takes place through assimilated understanding. Through it we comprehend the continuity of underlying principles, beneath the contrasts of discerning judgement and the variety of superficial appearances.

  In Sanskrit, the word for "ether" is *ākāśa*, which means "pervading space" and also "clear shining." This word describes the continuity of space and time, pervading through all experiences of the physical and mental world. The continuity is both objective and subjective. Objectively, *ākāśa* continues as the background of external space and time, seen in the world outside. Subjectively, it continues through each individual's experience, as the knowing background which persists through differing appearances that come and go. It thus enables an understanding of common principles, in the differing phenomena that nature manifests. That understanding is investigated by sciences of philosophical enquiry.

  As common principles are understood, the element called "ether" or *ākāśa* is experienced. It is the "pervading" element, found at the level of underlying continuity that is implied by all difference and change.

Traditional element	*Appearance of reality*	*Perceiving instrument*	*Examining disciplines*
'Earth'	Pieces of matter	Physical body	Physical sciences
'Water'	Patterns of energy	Living organism	Biological sciences
'Fire'	Meaningful information	Conceiving intellect	Cultural sciences
'Air'	Conditioned character	Intuitive judgement	Psychological sciences
'Ether'	Continuing existence	Assimilated understading	Philosophical enquiry
Unchanging Consciousness			

fig. 3

Beneath these five levels is their underlying ground, which is at once their inmost knowing principle and their uncompromised reality. On that is overlaid all of their seeming show. All levels and appearances arise from it. They all depend on its support. But it does not depend on them. For it shines by its own knowing light, while all else gets manifested by its self-illumination.

Such a conception of the old five elements is shown in *fig.* 3. The illustration is meant only to suggest that old sciences and ways of thought may be more deeply reasoned, than appears at first, from the outside. And hence we may have something to learn from their reflective questioning, for a broadening and deepening of education that is so badly needed in the modern world.

References

Aristotle's *De Anima.*

Bṛhadāranayaka Upaniṣad.

Kaṭha Upaniṣad.

Sāṅkhya-Kārikā.

4

India's Scientific Mind

A Quest for Infinity

Michel Danino

WHILE we often hear in India calls for the development of the "scientific temper," there is little inquiry into India's early achievements in the scientific field, much less into the specific nature of the Indian scientific mind, admittedly one of the most creative in the ancient world. Whether we deal with the size and age of the universe, huge or infinitesimal time scales, the speed of light, numbers from zero to infinity, the notion of evolution, cosmic dimensions underlying the construction of altars and temples, we find not only a familiarity with concepts that would appear only centuries later in the West, but an obsession with the infinite that allows no dogmatic limit and encourages the most daring conceptualizations.

With a vast material to choose from, this paper focuses on a few illustrations of the Indian approach to scientific knowledge systems, attempting to show how it encouraged Indian savants to conjure up notions and discoveries that would surface only centuries later in Europe. Examples have been drawn mainly from mathematics and astronomy (inseparable in early times) and architecture, but many more could be produced from other fields ranging from poetics to music.

Mathematics — the Joy of Infinity

India was home to many great mathematicians and astronomers, whose dates and places of birth are often speculative. Unfortunately, the long tradition that led to the "Golden Age" of Siddhāntic science (from the fifth century AD onward) has been largely lost, leaving many gaps in our knowledge.

Every culture gave names to numbers. In India, significantly, each of the smaller numbers (*fig.* 1) bore numerous names, most of which are directly related to philosophical and spiritual concepts. *Śūnya* (or *bindu*) for zero is a well-known case, but *ākāśa, aṁbara, ananta, kha, pūrṇa, vyoman* are some other terms for it, implying totality and wholeness rather than mere void. Number **1** (*eka*) is linked to indivisible notions such as *ātman, Brahman, sūrya, ekākṣara* (the syllable *auṁ*), the moon (*soma, abja, indu*), the earth, etc.; **2** (*dvi*) is also named after the Aśvins, the twice-born, Yama (as the primordial couple of the *Ṛgveda*), etc.; **3** (*tri*) after the Vedas, Śiva's eyes, the three worlds, *tripura*, the *triśūla*, the *guṇa*s, the triple Agni and so on; **4** (*catur*) after the *āśrama*s of human life, the *yuga*s, the Vedas, Viṣṇu's arms or Brahmā's four faces; **5** (*pañca*) after the elements, the indriyas, the Pāṇḍavas, Rudra's five faces; **6** (*ṣaṣṭha*) after the *rāga*s, the *darśana*s, Kārttikeya's six faces; **7** (*sapta*) after the seven Buddhas, the oceans (*sāgara*s) and islands (*dvīpa*s), the *ṛṣi*s, the divine Mothers (*saptamātṛkā*), the rivers (*saptasindhava*), the days of the week, Sūrya's horses, and much more; **8** (*aṣṭa*) after the eight mythical elephants, the points of the compass; **9** (*nava*) after the planets, the *navaratna*, Durgā; **10** (*daśa*) after the *avatāra*s, the Buddha's ten powers and stages, Rāvaṇa's heads. The list goes on with 12 Ādityas, 25 *tattvas*, 27 *nakṣatras*, 33 *devas*, 49 *Vāyus* . . . .

0 (*śūnya*)	*bindu, kha, pūrṇa, vyoman, ākāśa, aṁbara, ananta . . .*
1 (*eka*)	*ādi, pitāmaha, tanu, kṣiti, indu, soma, ātman, Brahman, sūrya . . .*
2 (*dvi*)	*aśvin, netra, pakṣa, yama . . .*
3 (*tri*)	*guṇa, loka, kalā, agni, tripura, triśūla . . . .*
4 (*catur*)	*diśā, yuga, īrya, āśrama, veda . . .*
5 (*pañca*)	*iśu, indriya, bhūta, pāṇḍava . . .*
6 (*ṣaṣṭha*)	*rāsa, aṅga, ṣaṇmukha, darśana . . .*
7 (*sapta*)	*aśva, nāga, ṛṣi, sāgara, dvīpa, buddha, sindhava, mātṛkā . . .*
8 (*aṣṭa*)	*gaja, nāga, mūrti . . .*
9 (*nava*)	*aṅka, graha, chidra, ratna . . .*
10 (*daśa*)	*aṅguli, āśā, avatāra, diś . . .*

***fig.* 1: Numbers 0 to 10 and a few symbolic connotations**

Naturally, those names were then used in combination to denote more complex numbers. From about the third century AD, those followed the decimal place-value notation, but beginning with the smaller unit. For instance, we find in Bhāskara's commentary (*c.* AD 629) on the *Āryabhaṭīya* rather uncommon Sanskrit words such as *viyadāmbarākāśaśūnyayamarāmaveda*. To make sense, it should be broken into: *viyat-aṁbara-ākāśa-śūnya-yama-rāma-veda*, that is, sky-atmosphere-ether-void-Yama-Rāma-Veda. Knowing that sky, atmosphere, ether and void all stand for 0,[1] that Yama stands for 2 (as the primordial couple), Rāma for 3 (Paraśurāma, Rāma and Balarāma), and the Veda for 4, we can read 0-0-0-0-2-3-4, that is to say, 432,000, in this case the number of years in a *yuga*. Other examples from the same commentary, from Varāhamihira's *Pañcasiddhāntikā* and other Siddhāntic texts could be supplied for much larger numbers, and therefore much longer "words."

Such concepts associated with number names show how inseparable mathematics and spirituality were in the minds of Indian mathematicians — it was one and the same worldview. It is no surprise, therefore, to find them reaching out to the infinite. Long before Rāmānujan, Indian savants showed "a 'mania' for large numbers," as French mathematician Georges Ifrah put it in his monumental *Universal History of Numbers*.[2] The *Ṛgveda* makes frequent mention of 100,000 (foes, gifts, cattle . . .), while the *Yajurveda* (e.g., IV.4.11) goes up to 10^{12}, a number called *parārdha*.[3] This grew by leaps and bounds in Jaina literature (such as the *Anuyogadvāra-Sūtra*) in which contemplation of an infinite and eternal universe led to numbers exceeding 10^{250} (in other words, 1 followed by 250 zeros, although this notation did not exist then). The Buddhist *Lalitavistara-Sūtra* reaches a number equivalent to 10^{421}!

Up to 10^{145} at least, many of the multiples of 10 bore specific names, though with many variants, and differences from one text to another (*fig.* 2). Interestingly, the name for 10^{140} is *asaṁkhyeya* ("innumerable" or which cannot be counted), a word which the *Lalitavistara-Sūtra* poetically defines as the number of raindrops falling on all the worlds for ten thousand years; this is the culmination of a long series of colossal numbers taught to the child Buddha by Viśvāmitra. Let us remember, by contrast, that the highest named number in ancient China and ancient Greece was 10,000 (the "myriad" in Greek); Arab names did not exceed 1,000; Europe had to wait until the thirteenth century before the French introduced the "million;" only in the seventeenth century were the billion, trillion, quadrillion, etc., introduced. Ifrah, who again and again records his admiration, writes:

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[1] The use of different words and symbols for the same number was meant to avoid unpleasant repetitions and to help memorization.

[2] Georges Ifrah, *Histoire Universelle des Chiffres* (Paris: Robert Laffont, 1994), vol. 2, p. 56. This remarkable study is available in an English translation, *The Universal History of Numbers: From Prehistory to the Invention of the Computer*, John Wiley & Sons, 2000, and now Penguin, 2005, but I have translated this and subsequent quotations from the French.

[3] Let us note that all larger numbers (and many of the smaller ones too) mentioned in the Vedic texts are multiples of ten, a clear indication that from the earliest stages, India had a decimal view of numbers. Interestingly, the Indus-Sarasvatī civilization also shows evidence of partial use of the decimal system in town-planning, street and house proportions, also in its weight system. Centuries later, this evolved into the decimal place-value system of numeral notation, one of India's greatest contributions in the scientific field.

> We have here, if need be, one more proof of the very clear Indian intellectual lead over all contemporary Western thought, and one more testimony to the great fertility of the Indian savants' minds.
>
> — Ifrah, vol. I, 953

100	10^{2}:	*śata*
1000	10^{3}:	*sahasra*
10000	10^{4}:	*ayuta, daśasahasra*
100000	10^{5}:	*lākh, lakṣa, niyuta*
1000000	10^{6}:	*daśalakṣa, prayuta*
10000000	10^{7}:	*koṭi, arbuda*
100000000	10^{8}:	*arbuda, vyarbuda, nyarbuda, daṣakoṭi*
1000000000	10^{9}:	*padma, samudra, abja, ayuta, nahut*
10000000000	10^{10}:	*kharva, madhya, arbuda, samudra*
100000000000	10^{11}:	*nikharva, anta, madhya, ninnahut, salila*
1000000000000	10^{12}:	*mahāpadma, parādha, mahābjanantya*
10000000000000	10^{13}:	*śaṅka, ananta, khamba, kaṅkara*
100000000000000	10^{14}:	*samudra, pakoṭi, jaladhi, padma, vādava*
1000000000000000	10^{15}:	*madhya, akṣiti, antya, mahāpadma*
10000000000000000	10^{16}:	*antya, madhya, kṣoṇī*
100000000000000000	10^{17}:	*parārdha, abab, kṣobhya, vṛndhā*
1000000000000000000	10^{18}:	*śaṅka*
10000000000000000000	10^{19}:	*attata, vivahaḥ*
100000000000000000000	10^{20}:	*kṣiti*
1000000000000000000000	10^{21}:	*koṭippakoṭi, kumud, utsaṅga*
10000000000000000000000	10^{22}:	*kṣoba*
100000000000000000000000	10^{23}:	*bahula, guṇādhika*
10000000000000000000000000	10^{25}:	*nāgabala, utpala*
1000000000000000000000000000	10^{27}:	*puṇḍarīka, titilambha*
10000000000000000000000000000	10^{28}:	*nahuta*
100000000000000000000000000000	10^{29}:	*vyavasthānaprajñapati*
10000000000000000000000000000000	10^{31}:	*hetuhila*
1000000000000000000000000000000000	10^{33}:	*karahu*
10000000000000000000000000000000000	10^{34}:	*mahāpadma*
100000000000000000000000000000000000	10^{35}:	*hetvṛndīya*
10000000000000000000000000000000000000	10^{37}:	*saṅāptalambha*
1000000000000000000000000000000000000000	10^{39}:	*gaṇanāgati, kharva*
100000000000000000000000000000000000000000	10^{41}:	*niravādya*
1000000000000000000000000000000000000000000	10^{42}:	*akkhobhini*
10000000000000000000000000000000000000000000	10^{43}:	*mudrābala*
1000000000000000000000000000000000000000000000	10^{45}:	*sarvabala*

and so on up to ... 10^{145}!

fig. 2. Large numbers and some of their names

> . . . [Moreover,] the Sanskrit numeral notation carried within itself the very seed of the discovery of the principle of the decimal notation.
>
> — *Ibid.*: 956

Reaching out to the infinite implied the use of some of India's common symbols of infinity: numbers such as 10^9, 10^{14}, 10^{21}, 10^{25}, 10^{27}, 10^{29}, 10^{105}, 10^{112}, 10^{119} were named after the lotus (under different names: *padma*, *utpala*, *kumud* . . .). Similar examples could be given with the ocean (*samudra*), the moon (*abja*), the earth (*kṣiti*), and of course *ananta*.

Ultimately, mathematical infinity got a name of its own, *khacheda* or *khahara*. *Khacheda* means "divided by *kha*" (space), that is, by zero. This is indeed a perfect definition for infinity, and probably the earliest in the world; the term was introduced by Brahmagupta in his *Brahma-sphuṭasiddhānta* (AD 628); *khahara*, with a similar meaning, was used by Bhāskarācārya. At the other end of the scale, the *paramāṇu* or "supreme atom" corresponded to a weight of 0.000000614 gram!

The fascination with huge numbers is well illustrated by the legend of *caturaṅga*, an ancestor of the game of chess.[4] Sessa, a clever brāhmaṇa, once demonstrated this new game to a king, who was so pleased that he told him to ask for any reward. Sessa humbly requested 1 grain of wheat on the first square of the board, 2 on the second, 4 on the third, 8 on the fourth, and so on, doubling the number of grains on every square up to the sixty-fourth. The king thought the request was ridiculously modest and insisted on a more substantial one, but Sessa declined. The royal mathematicians set about calculating the amount, but after great labour could make little headway. In the end, mathematicians were called from a neighbouring kingdom, who were familiar with the decimal place-value system and could therefore easily make calculations with large numbers. It turned out that even if the whole earth were sown with wheat, it would take 73 harvests to reach the desired number of grains: $2^{64} - 1$, enough to fill a volume of over 12 million million (12×10^{12}) cubic metres.

Leaving calculations aside, we can also trace astonishing mathematical concepts in "mythological" stories. The Buddhist text *Avatamsaka-Sūtra*, for instance, depicts a network of pearls placed in heavens by Indra in such a way that "in each pearl one can see the reflections of all the others, as well as

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[4] I have adapted here the version given by Ifrah, vol. 1, p. 755 ff.

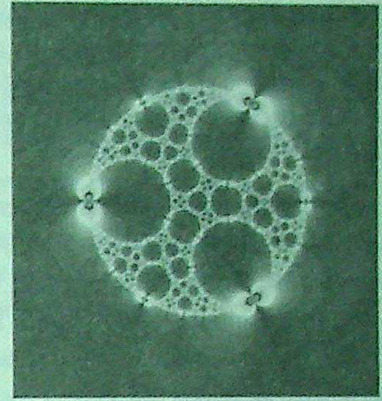

fig. 3: One of the solutions to the problem of Indra's pearls

the reflections within the reflections and so on."[5] This might appear as mere poetic fancy and a practical impossibility, but U.S. mathematicians working on this theme found that Indra's pearls precisely follow the arrangement of circles in what is called a "Schottky group," and worked out several possible designs fulfilling the *sūtra*'s conditions (*fig.* 3).[6] Intuition? Perhaps simply a poetic approach to mathematical truths, like the raindrops mentioned earlier.

Astronomy — the Mystery of Infinity

To the early Indian astronomer, the universe was the best example of the infinite. We are familiar with the endless series of *yugas*, *kalpas*, *manvantaras*, tending towards limitless time scales. Āryabhaṭa's cosmology was based on *yugas*, with a *mahāyuga* or *caturyuga* of 4,320,000 years consisting of four equal ages of 1,080,000 years each. Later astronomers kept the same value for the *mahāyuga*, but with durations of 1,728,000, 1,296,000, 864,000 and 432,000 years respectively for the four ages (thus a *mahāyuga* became ten times as long as a *Kaliyuga*). A "day of Brahmā" was defined as one *kalpa* or 1,000 *caturyuga*, that is, 4,320,000,000 years. Coincidentally, this happens to be almost exactly the age of the earth, and it made the well-known American astronomer Carl Sagan note:

> The Hindu religion is the only one of the world's great faiths dedicated to the idea that the Cosmos itself undergoes an immense, indeed an infinite, number

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[5] This quotation as well as the gist of the account are taken from: http://klein.math.okstate.edu/IndrasPearls/cover-art/

[6] David Mumford, Caroline Series and David Wright, *Indra's Pearls: The Vision of Felix Klein*, Cambridge University Press, 2002.

> of deaths and rebirths. It is the only religion in which the time scales correspond to those of modern scientific cosmology. Its cycles run from our ordinary day and night to a day and night of Brahma, 8.64 billion years long. Longer than the age of the Earth or the Sun and about half the time since the Big Bang. And there are much longer time scales still. — Cosmos, ch. X

Indeed, the concept of cyclic dissolutions (*pralaya*) and creations is reminiscent of the pulsating universe today's astronomers speak of. As regards the "longer time scales," Brahmā's entire life adds up to 311,040 billion human years, which yet represents "a zero in the infinite flood" (Ifrah, I: 942). Jain cosmology dealt with a time period of 2^{588} years! Indeed, "time is without beginning and end," as Āryabhaṭa asserted (*Āryabhaṭīya*, III.11).

To put these concepts in perspective, let us remember that Judeo-Christian Europe believed the creation to have come into existence just a few thousand years ago, for the first and last time: this was on the *anno mundi*, around 3761 BC according to rabbinic calculations prevalent from the tenth century onward. In the seventeenth century, Archbishop James Ussher calculated that the universe had been created in 4004 BC, a belief which prevailed until Darwin. Clearly, we are dealing not only with different time scales, but with different *mind scales*.

Daring Indian savants also explored the shortest possible units of time. The Purāṇic *nimeṣa* amounts to one 405,000th of a day, or about 0.21 second. In his *Siddhāntaśiromaṇi*, Bhāskara II defined a smaller value for the *nimeṣa* (one-972,000th of a day, or about 0.089 second) and further divides it again and again, until he reaches the *truṭi*, a unit of time equal to one- 2,916,000,000th of a day, which is one- 33,750th of a second!

As far as the dimensions of the universe are concerned, Āryabhaṭa provides us with an astonishing coincidence. According to him, the precise length of the "orbit of the sky" is 12,474,720,576,000 *yojana*s.[7] This works out to a diameter of roughly 5×10^{13} km, or over 4,000 times the size of our solar system[8] — not by any means a small place. This "orbit of the sky" is actually not the whole universe, but the space illumined by the Sun. Now, astronomers tell us that the Sun has a magnitude of 4.7 at a distance of 10 parsecs,[9] or about 30 × 10^{13} km; this is approximately the smallest magnitude perceivable to the human eye. Amazingly, Āryabhaṭa's value is one-sixth of this distance, and therefore (in astronomical terms) very much of the same order.

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[7] This number is obtained by multiplying the number of revolutions of the Moon in a *yuga* of 4,320,000 years, which Āryabhaṭa tells us is 57,753,336, by 12 and again by 30, 60 and 10, *Aryabhaṭīya*, I.6.

[8] Taking the solar system to mean up to Pluto (the diameter of Pluto's orbit is 11.8 $\times 10^{9}$ km).

Āryabhaṭa's commentator, Bhāskara I, adds,

> For us, the sky extends to as far as it is illumined by the rays of the Sun. Beyond that, the sky is immeasurable. . . . The sky is beyond limit; it is impossible to state its measure.
>
> — cited Shukla & Verma 1976: 12

Finally, we must give Āryabhaṭa credit for many other remarkable advances. Of relevance to our study is the prescient notion that the earth is a rotating sphere[10] (*Āryabhaṭīya*, IV, 6.9) and a correct estimate of its size.[11] Again, we can only speculate how he and his contemporaries arrived at such results.

Sāyaṇa and the Speed of Light

One of the enduring riddles in the history of Indian science is: Could ancient Indians have somehow figured out the velocity of light?[12] As we know, it was measured for the first time (though very approximately) by the Danish astronomer Ole Roemer in 1675, and more precisely in the nineteenth century. But there is an intriguing comment by Sāyaṇa on a hymn of the *Ṛgveda*[13] addressed to Sūrya. Sāyaṇa records a tradition associated with Sūrya: "Thus it is remembered: [O Sūrya] you who traverse 2,202 *yojana* in half a *nimeṣa*."

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[9] These figures are taken from the *Encyclopaedia Britannica* (1997) under the article "Stars and Star Clusters: Light from the stars."

[10] However, contrary to a popular notion, Āryabhaṭa does not seem to advocate a heliocentric system; several passages imply that his view of the universe remains geocentric.

[11] According to Āryabhaṭa, the spherical earth has a diameter of 1,050 *yojana* (about 12 km), therefore a circumference of 1050 × 12 × π = 39, 584 km . . . almost exactly the actual figure. His value for the Moon's diameter comes close: 3780 km instead of 3473 (about 9 per cent error). (However his values for the Sun and the planets are far too small.)

[12] See "The Speed of Light and Puranic Cosmology" in *Computing Science in Ancient India*, eds. T.R.N. Rao and Subhash Kak, Center for Advanced Computer Studies, University of Southwestern Louisiana, 1998.

[13] "Swift and all beautiful art thou, O Sūrya, maker of the light, illumining all the radiant realm" (1.50.4).

In Sāyaṇa's time, the *yojana* was about 14.5 km (as given in the *Arthaśāstra*), and a *nimeṣa* 16/75th of a second. This takes us to 299,334 km/s, which is a mere 0.15 per cent away from the accepted velocity of light (299,792 km/s). Even a different value for the *yojana* would remain of the same order.

Again, is this just a coincidence? But if it is, what could be the intended meaning in making the sun race madly through the heavens, when everyone knows it does no such thing? And if it is not, how did the unknown authors of the "remembrance" Sāyaṇa refers to come to such a figure for the speed of light, when Western science could measure it only with sophisticated apparatus centuries later? The riddle will remain one until new and more explicit references to this tradition come to light.

Microcosm and Macrocosm

What is in the mind will soon find expression outside; the microcosm reflects and symbolizes the macrocosm. This fundamental equation runs through every aspect of Indian civilization.

As elsewhere, astronomy in India developed partly to keep calendars, fix the dates of seasonal sacrifices, etc. The *Ṛgveda* is replete with cosmic references, such as the marriage of Earth and Heaven, hymns to the Dawn, to the three worlds, etc. In addition, there seems to be an intriguing astronomical code embedded in the ordering and numbers of its hymns, according to its discoverer Subhash Kak, as we find that totalling up the number of hymns in each book in various combinations yields the synodic periods of the five planets (*fig.* 4), and much more astronomical symbolism (Kak 2002:6).

The *Sulba-Sūtras* explored complex geometrical constructions designed to assemble fire altars with bricks of various shapes (square, rectangular, triangular, rhomboid, pentagonal) and sizes, in five layers of cosmogonic and astronomical significances, from earth to the highest heaven (each layer usually had 200 bricks, so 1,000 in all). Moreover the chariot-wheel altar (*fig.* 5) has been interpreted by Subhash Kak as a representation of the orbit of the sun (*Ibid.*, chap. IX).

Such concepts were refined and systematized in *Vāstu Śāstra* and the building of temples, which are essentially representations of the cosmos, often centred on Mount Meru, or else representations of the cosmic being symbolized by a human body. Ultimately, cosmogony ended up being reflected in rituals: salutations to the cardinal points, observance of eclipses, the worship of the planets (*navagraha*) and astrology as a whole (regardless of its predictive

Hymns of the Ṛgveda

Maṇḍalas	1	2	3	4	5	6	7	8	9	10
Hymns	191	43	62	58	87	75	104	92	114	191

Sidereal and Synodic Periods in Days

Planet	Sidereal Period	Synodic Period
Mercury	87.97	115.88
Venus	224.70	583.92
Mars	686.98	779.94
Jupiter	4332.59	398.88
Saturn	10759.20	378.09

Synodic Periods in Days by Books

Books [3+4] = 120 (Mercury)
Books [1+5+9+10] = 583 (Venus)
Books [1+5+7+8+9+10] = • (Mars)
Books [2+3+5+8+9] = • (Jupiter)
Books [2+4+5+6+9] = 377 (Saturn)

fig. 4: **Astronomical code in the Ṛgveda, after Subhash Kak**

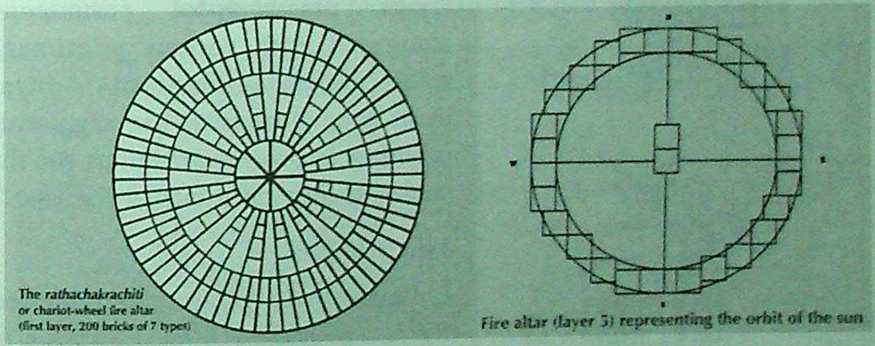
The *rathachakrachiti* or chariot-wheel fire altar (first layer, 200 bricks of 7 types)
Fire altar (layer 5) representing the orbit of the sun

fig. 5: **The chariot-wheel fire altar and its fifth layer**

value), all have the same roots and effectively connect the individual to the universe.

But cosmic designs did not end with temples or even more ordinary constructions, as town-planning from the earliest times shows. Beginning with the impressive Harappan cities (*c.* 2600 BC), we find a careful orientation along the cardinal directions, grid plans, enclosing walls, etc. In the case of

Mohenjo-Dāro, however, Holger Wanzke observed that the alignment of Mohenjo-Dāro's citadel (*fig.* 6) has a 1° to 2° clockwise divergence from the cardinal directions and in fact points to an east-west alignment along the Pleiades star cluster (Kṛttikā), which rose due east and set due west during the mature Harappan phase at the vernal equinox (because of the precession of the equinoxes, it no longer does). The *Śatapatha Brāhmaṇa* (2.1.2.3) indeed refers to a time when the Pleiades, the first of the 27 *nakṣatras*, "does not swerve from the east," which is precisely the mature Harappan period. Dholavīra (in Kutch), exhibits a highly geometrical planning with carefully calculated proportions, but it is not clear whether it has an astronomical backdrop.

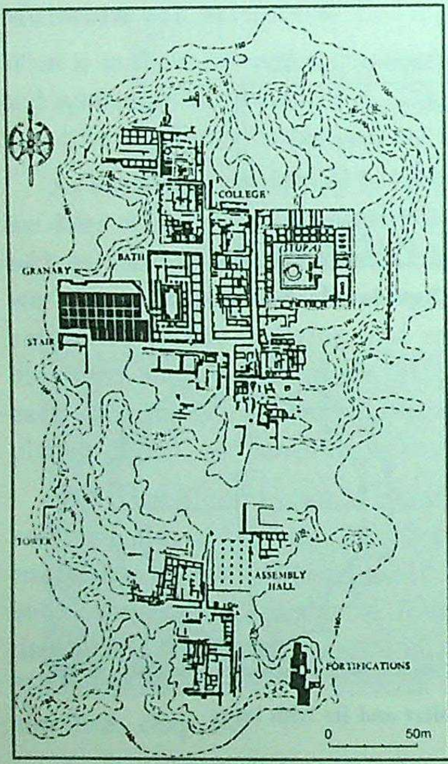

***fig.* 6: The upper city at Mohenjo-daro, with a highly geometric layout.**

Many cities of historical times clearly have one. We will just mention here two recently studied cases:[14] that of Citrakūṭa (*fig.* 7), where places of pilgrimages have been found arrayed in arrow-like designs reminiscent of Lord Rāma, and oriented to the summer solstice sunrise and sunset; and Kāśī (*fig.* 8) where, amidst many layers of complex cosmogony connected with various pilgrimage routes, we find shrines to 14 Ādityas in an array of sunbeam-like alignments pointing to precise directions for the sunset at different times of the year.

Life Sciences

Indian knowledge systems regarded the human body as a representation of a cosmic being, not just in architecture but also in medicine; this is one of the principles of *Āyurveda*, which aims at harmonizing the human body with the

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[14] Please see J. McKim Malville & Lalit M. Gujral, *Ancient Cities, Sacred Skies: Cosmic Geometries and City Planning in Ancient India*, New Delhi: Indira Gandhi National Centre for the Arts & Aryan Books International, 2000.

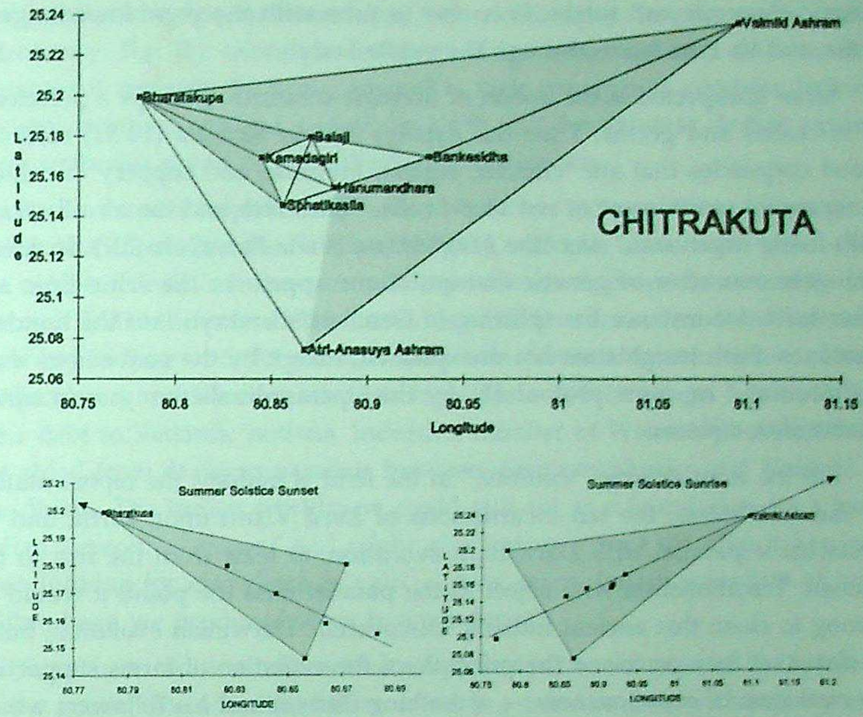

fig. 7 : Cosmic orientations at Citrakūṭa
(adapted from J. McKim Malville & Lalit M. Gujral.)

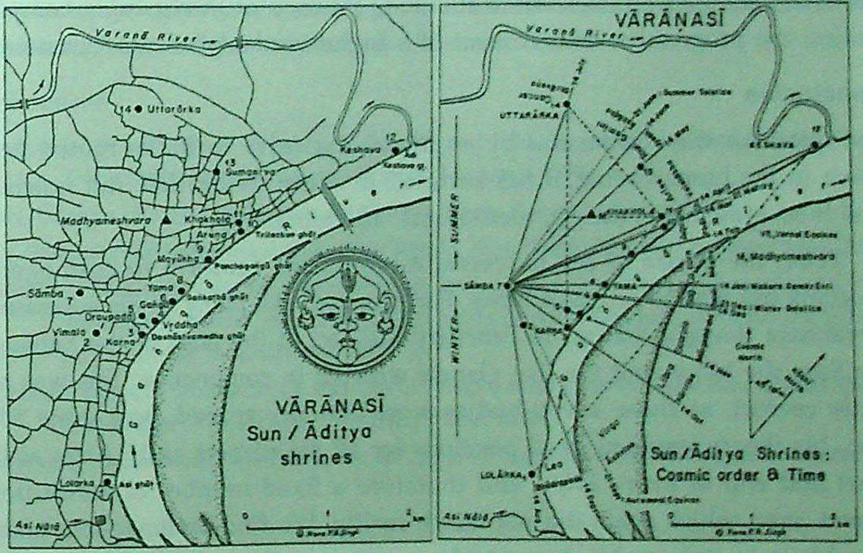
Varanā River
Uttarārka
Sumantra
Keshava
Madhyameshvara
Khakhola
Aruna
Trilochan ghāt
Mayūkha
Panchagangā ghāt
Yama
Sāmba
Ganga
Draupadi
Vṛddha
Vimala
Karna
Dashāshvamedha ghāt
Lolarka
Asi ghāt
Asi Nālā
VĀRĀṆASĪ
Sun / Āditya shrines
VĀRĀṆASĪ
UTTARĀRKA
SUMMER
WINTER
SĀMBA 7
YAMA
KARNA
LOLĀRKA
KESHAVA
Summer Solstice
Vernal Equinox
Madhyameshvara
Winter Solstice
Cosmic North
Autumnal Equinox
Sun/Āditya Shrines: Cosmic order & Time
0
1
2 km

fig. 8 : Alignment of the Āditya shrines at Kāśī
(adapted from J. McKim Malville & Lalit M. Gujral)

cosmic elements and forces. It is also in tune with the *yogic* knowledge of *prāṇa* and its circulation through the subtle body.

More unexpected is the notion of invisible creatures, perhaps a prescience of microbes and germs. Thus the *Aṣṭāṅga Hṛdaya Saṁhitā* (14.51) refers to blood corpuscles that are "circular, legless, invisible, and coppery in colour" — strangely reminiscent of red blood cells. "The earth and the air all swarm with living organisms," says the *Mahābhārata* (Vana-Parva, ch. 207). Incidents strangely evocative of genetic manipulations appear in the same Epic and other texts, for instance the splitting of Gāndhārī's embryo into the hundred Kauravas. Such insights remain unexplained, except by the convenient word of "intuition," or, more profoundly, by the Upaniṣadic dictum *yasmin vijñate sarvaṁ idaṁ vijñātam*.

But the most striking "intuition" in the field is perhaps the representation of the *daśāvatāra*s, the ten incarnations of Lord Viṣṇu upon earth, and its remarkable parallel with Darwinian evolution, at least from the fish to the human. Traditionalists who object to the parallel miss the point: it would be wrong to claim that ancient Indians "discovered" Darwinian evolution, but it is clear that they perceived the principle of the evolution of forms supporting an evolution of consciousness — something Darwin and his followers would not be prepared to envisage. Yet that may be the whole meaning of evolution, as Sri Aurobindo pointed out. We must salute the depth of perception of the *ṛṣi*s who saw the purpose behind this long journey of increasingly complex bodies: the progressive embodiment of a higher and higher consciousness.

Conclusion

The quest for the infinite was by no means exclusive to India; rooted deep down in the human being, it has surfaced in every civilization. But nowhere was it so systematic, daring, methodical, all-embracing.

True, the desire to see universal mechanisms conform to cosmogonic concepts did lead to errors at times. For instance, like many of his successors, Āryabhaṭa thought that on 18 February 3102 BC, at the start of the *Kaliyuga*, the Sun, the Moon and the five planets were all in conjunction; this was not quite correct, as those seven bodies were actually spread over some 50°; also, his theory imposed fixed positions for all the planets at 0° Aries at the start and end of every *kalpa*, and therefore a fixed number of revolutions over a *yuga*, which again did not match reality. We find Brahmagupta taking Āryabhaṭa to task for his concept of a rotating earth, an example of rigidity (for an otherwise fine mathematician) that was to delay the progress of Indian astronomy. But the overall assessment of mathematical and astronomical advances is certainly flattering: at least in their concepts of numbers, infinity, decimal notation, age and size of the earth and the universe, Indian savants were centuries ahead of their Western counterparts.

Such advances helped the growth of "modern" science through the agency of the Arabs, possibly the Greeks (though it will take some more time before the extent of India's influence on ancient Greece is properly assessed). It is not as if Indian science died after the Islamic invasions; "modern" scientists such as J.C. Bose or S. Rāmānujan were imbued with the worldview of their predecessors, and Western scientists from Tesla to Schrödinger acknowledged their debt to Vedāntic notions. Indeed, a number of Western physicists have not shied from drawing parallels between quantum physics and Vedānta or Buddhism. The Indian worldview could still act as a foundation for a truly Indian "scientific temper," and might give Indian science the fillip it has long been looking for elsewhere in vain — how many Indian scientists of high calibre have we produced since Independence?

But this worldview will not be scientific to the exclusion of the spiritual or the poetic. The scientific Indian mind is a mind in love with infinity and eternity. It explores the Mind and ultimately the Spirit, together with Life and the physical universe. Like Bhāskarācārya's daughter, Līlāvatī, waiting in vain for her *ghaṭī-yantra* to fill up, it loses the sense of time and drifts into a contemplation of this mysterious universe.

References

Āryabhaṭa, *Āryabhaṭīya* tr. & ed. K. S. Shukla and K.V. Sarma in *Aryabhatiya of Aryabhata* (New Delhi: Indian National Science Academy, 1976), p. 12.

Ifrah, Georges, *Histoire Universelle des Chiffres,* Paris: Robert Laffont, 1994.

Kak, Subhash, *The Astronomical Code of the Rgveda,* New Delhi : Munshiram Manoharlal, 2000.

Malville, J. McKim & Lalit M. Gujral, *Ancient Cities, Sacred Skies: Cosmic Geometries and City Planning in Ancient India,* New Delhi: Indira Gandhi National Centre for the Arts & Aryan Books International, 2000.

Mumford, David, Caroline Series and David Wright, *Indra's Pearls: The Vision of Felix Klein,* Cambridge : Cambridge University Press, 2002.

Vedavyāsa, *Mahābhārata,* Vana-Parva, Ch. 207, tr. K.M. Ganguli, Delhi : Munshiram Manoharlal, 2000.

5

Dividing the Thousand into Three

Wagish Shukla

ubhā jigyaturṇa parā jayete na parā jigye kataraścanainoḥ ।
indraśca viṣṇo yadapaspṛdhetāṁ tredhā sahasraṁ vi tadairayethāṁ ॥

> You Two together won and were never defeated; neither one of you was ever defeated even singly. Whatever you desired from this Thousand existing in the threefold way, the World, the word, and the Utterance, you transcended.
>
> — *Ṛgveda*, 6.70.8

THE purpose of this article is to explore the concerns of Indian Mathematics before the advent of modern times.

1

Before the prophetic societies took over the pagan world, all intellectual enterprise existed primarily as an exploration into the mysteries that surround us. Such an exploration meant establishing communication with the gods. Such a communication meant Poetry, Art, and Science as we know it today. There was no secular vocation, though "religious" in contemporary semantics is too restrictive an adjective for this communication.

Mathematics is no exception. It was used to construct altars in ancient Greece and India. The universe was a geometric figure in which mysterious objects like the Sun and Moon and the Stars and the Galaxies existed, inevitably, if invisibly, concerned with the life on this earth, interfering, influencing and directing the course of events.

Perhaps they were gods? Certainly they were gods. They did not seem to die as human beings do. But perhaps they died eventually, perhaps they just had a longer lifespan. Certainly they died. But then they needed food, sex and houses, just as human beings do while they lived. And perhaps death was just an interlude between two kinds of lives. Perhaps death was a transformational device, at par with birth. Perhaps death was birth. Or vice versa. But then even after death. . . .

No, there could not be any finality about either birth or death. The end is the end of beginning which is the end of end.

Perhaps. Most certainly. Why not? Why?

There was no attempt in the pagan world to control and direct the dynamics of the universe except through theurgy. There was no belief in the "anthropic principle;" no suggestion that the process of using fruits from trees and grain from plants for human survival was not to be reciprocated by the process of using the human biomass (converted into natural biomass after burial or cremation) for the survival of trees and plants.

2

Suppose you try to build a building. A dwelling is not much of a problem, its functionality is of course governed by your quotidian requirements which can be humble if you are not in the position of being a symbol, say a king. Then of course you are no ordinary mortal. You are a descendent of a god; if not genealogically so, a consecration ritual guarantees your transportation from humanity to divinity. Even so, there are more temples than palaces whose traces survive.

You build a Parthenon, a Great Pyramid. The building of a building is an activity special to human beings and gods certainly do not build their personal dwellings. They do not bring their structural engineers, their soil-testers, their stone-cutters, their masons. And they do not send their mathematicians to ensure that an isosceles triangle will be an isosceles triangle, a circle will be a circle, a square will be a square. This has to be done by human beings.

So exactly as a poet tries to ensure that her rhymes and measures do not falter, the architect ensures that the slope of her angle of inclination has a certain exactitude which will support a link to some "divine proportion." But even the Great Pyramid cannot fight against time; later generations can vandalize it for a simple reason like easily obtained building material.

The paper drawing is safer, because it is merely a translation of an idea. As long as the idea is transferable, the paper drawing can be drawn by anybody who is competent enough to receive and retain the idea. Therefore, a temple is safer on the paper.

And of course, a temple is still safer in the mind.

This is the difference between the Great Pyramid and the *śrī-yantra*. The *śrī-yantra* can exist as a city, as Madurai does, but it usually exists on a plate. But it actually exists in the mind. It is after all, nothing less than the seat of the goddess, her city, her *mantra*, she herself. Like the earthen *liṅga* of the Śiva, like the image of the Durgā or Gaṇeśa, it is a must destructible. They all, after all, exist in the mind which is a must destructible.

The pagan world creates Poetry and Science, the non-pagan world creates Technology. They do not, of course, exist in splendid isolation from each other. But unless the pagan view is axiomatic, the coexistence and the inclusivity are lost. When the non-pagan view is axiomatic, non-coexistence and the non-inclusivity take over.

This is the difference between the pagan and the non-pagan. And of course, this is the difference between a mathematician and a surveyor.

3

The pagan world is concerned with non-deterministic and non-teleological intellectual activities like poetry and science, the prophetic world with deterministic and teleological intellectual activities like proceleusmatics and technology. Let us consider an example, confining ourselves to mathematics.

It is unreasonable to restrict mathematics to "symbolic mathematics," the system with which we are all familiar. In our arrogance, we disregard the fact that a society can exist very properly without some things which are regarded as basic by contemporary requirements. The Incas are reported to lack a written language besides the wheel and the beasts of burden, but they organized and controlled an empire whose material culture was in many ways superior to the the then Spain which destroyed the Incas. The Incas built better and wider roads for example.

The Incas stored numerical data in a decimal scale on their *quipu*[1] besides using it for recording and transmission of information about an elaborate judicial and administrative system which included things like household census. The mathematics in the *quipu* consists of the logical structure which records given and derived values, records which were computed on the so-called Inca Abacus.[2] We do not have the precise details since the Inca civilization was totally destroyed but an eyewitness says:

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[1] A *quipu* is constructed by different types of knots on different types of cords with another dimension added by colour.

[2] *An Inca Abacus* is conjectured to be another kind of *quipu* using maize kernel.

> . . . they are better at practical arithmetic than we are with paper and ink. Whether this is not ingenious and whether these people are wild animals, let those judge who will! What I consider as certain is that in what they undertake to do they are superior to us.[3]

The Incas were certainly not superior in The Art of War, the one art in which the non-pagan civilizations excelled. The non-pagan civilizations also regarded themselves as superior, Father Josè de Acosta notwithstanding, because they used paper and ink and not maize kernels for their arithmetic. And this superiority gave them the unquestioned right to eraze a people from the face of this earth, permitting the right of life to only those who depaganized themselves.

Father Josè de Acosta is of course wrong, he wrote in late sixteenth century and European Mathematics of the day could not be done without paper and ink nor was it limited to the kind of practical arithmetic that can be done by using maize kernels. But no pagan mind would think of eliminating wild animals simply because they are wild animals.

The disquieting thing about the logic of Father Josè de Acosta is that it tries to say that the Inca should live because they are not wild animals; in other words, it is a *civilizational scale* which determines who has the right to live and use the air and water that was given free to humans, animals and trees alike. Thus though the Inca never invaded Spain, they deserved to be exterminated because they did not have the rights to their land and air and water for two simple reasons: they did not have the same god who was the god in Spain, and they used maize kernels for their arithmetic instead of paper and ink.

Let all of us not condone greed on the basis of ideology. The old value of *aparigraha* (non-accumulation) does not say that you should not eat well or should not provide for your retirement; it does say that others also have this right.

4

In a Memoir[4] read on 15 December 1832, and called *On the Hindu Quadrature of*

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[3] Father Josè de Acosta quoted in *The Crest of the Peacock*, George Gheverghese Joseph, Delhi: Penguin Books, 1990. Other pieces of information of Inca Mathematics are also taken from this book.

[4] Reprinted as an Appendix in T.S. Bhanumurthy, *A Modern Introduction to Ancient Indian Mathematics*, Delhi: Wiley Eastern Limited, 1992.

the Circle, Charles M. Whish, in the Civil Service of the East India Company on the Madras Establishment, gives an account of some achievements of Indian Mathematicians. In 1935 and 1938 the two-volume treatise *History of Hindu Mathematics* by two dedicated scholars, Dr Bibhuti Bhushan Datta and Dr Avadhesh Narayan Singh, appeared. Since then, many accounts of varying details and accuracy have appeared. With all this, Ancient Indian Mathematics remains "lesser known" in much the same way that the tribal languages are "lesser studied."

The traditional orientalist viewpoint had refused to believe in any intrinsic capability amongst orientals. The reasons for this lie in the basic axioms which assert that the journey from paganistics to prophetism is a journey of linear progress. Thus from the dark days of many gods to the bright lights of a unitary god automatically conferred higher points on the intellecutal, organizational and moral scales.

There was, however, a significant difference between the Judean and the non-Judean Prophetisms. The Judean Prophetism simply divided the people of the world between "we" and "they." The "we," who had a covenant with the god mediated through the Prophet, were legislated and mandated as against the non-legislated and non-mandated "they." Thus a grammaticated people were distinguished from the non-grammaticated people through a god-authored grammar. This conferred a supremacy and some rights on the grammaticated, but these rights did not include the right to alter the god-determined demographic and anthropological balance through conversion. In other words, the human agency of proselytization was not empowered to add to the population of the conferees by subtracting from the population of the non-conferees.

The non-Judean Prophetisms, the most famous and powerful examples being Christianity, Islam and Marxism in the chronological order, include evangelism not merely as a possible, but as an ordained, instrument of destroying the multi-form culture of the human race in order to create a uniform monospeak in which variations are regarded as cognizable offences inviting usually nothing short of death penalty as the punishment, in which censorship becomes a noble activity and squealing becomes a duty, in which articulation of alternatives is a strict no-no.

For more than a millennium, the paganistics of India have been under attack from the forces of these non-Judean Prophetisms. The Al-Birunis, the William Joneses, the Romila Thapars have synergically joined forces to project

India as a country which has no history except a history of invasions which had the basic purpose of spreading the values of social equality, justice and brotherhood in order to transform an oppressive society into an enlightened equipollence, the violent means to obtain these laudable ends being merely side-text.

Confining ourselves to the versions dominant for the last two centuries, the insistence is on the theme that every signature of the intellectual and the material culture of India was drawn with a stylus imported via an invasion from Greeks to Turks. Consequently, if there was any mathematics, it was imported from the Ancient Greece which was co-opted by the post-pagan Europe as her inheritance, and if there was any technology, it was imported from the post-Islamic Central Asia. A racial input ensured that Aryans could not be anything other than Caucasians descending in hordes upon the original inhabitants in a rehearsal of the war-show in which the Pelasgian was decimated by the Hellene.

5

We Make a short list of some achievements of Ancient Indian Mathematics.

1. **The Zero:** The importance of Zero cannot be overemphasized in Mathematics. In Babylonia for instance, there was no Zero and $60 \times 3 + 30 = 210$ could also be read as $60^2 \times 3 + 60 \times 30 = 12600$ or even $3 + 60^{1} \times 30 = \frac{1}{2}$. We may note that the Babylonian society was a highly developed society noted for its mathematical achievements in third millennium BC; its achievements in Astronomical calculations are indeed laudatory.

   The Hellenistic system did have a symbol for Zero, but it did not have the status of a number. The Hellenistic society was again a highly developed society; it is certainly the society whose concerns and achievements are the best known and drive, as they have been driving for a couple of millennia, the concerns and achievements of the contemporary mainstream intellecutal activity.

   The Mayans had a Zero but it did not mean that the appending of it at the end of a number would multiply it by 20 (their base was vigesimal) the way the Indian Zero added to the right of a number means that the number is multiplied by 10. This inhibited the arithmetical development. But the Mayan society was again a highly developed society; it is to be noted that their average lunar month was of 29.5302 days and with all our technology today we conclude that it is of 29.53059 days.

The Indian Zero can be said to be at the root of modern Mathematics.

2. **Indeterminate Equations:** The problem is to examine the quadratic indeterminate equation.

   $Dx^2 \pm c = y^2$, $D > 0$, $D, c \in \mathrm{N}$ $D \neq$ a square integer

   for integer solutions (x, y).

   Brahmagupta (*b* 598) gave the following lemma:

   If $(x, y) = (\alpha, \beta)$ is a solution of the equation $Dx^2+k = y^2$, and if $(x, y)= (\alpha', \beta')$ is a solution of the equation $Dx^2+k' = y^2$, then $(x, y) = (\alpha\beta'+\alpha'\beta, \beta\beta'+D\alpha\alpha')$ and $(x, y) = (\alpha\beta' - \alpha'\beta, \beta\beta' - D\alpha\alpha')$ are solutions of the equation $Dx^2+kk'=y^2$.

   This lemma and certain of its consequences are known in Indian Mathematics as *bhāvanā*.

   These results were rediscovered by Euler (1764) and Lagrange (1768) in Europe and widely used because of their fundamental importance. Bhāskarācārya, usually called Bhāskara II (1150), because there was another mathematician named Bhāskara earlier, deals with the problem extensively. His major contribution is the so-called *cakravāla* method which he refined from Jayadeva (1000). Referred to as "the Hindu Cyclic Method," the method was assessed in 1975 by Clas-Olaf Selenius[5] of the University of Uppsala in the following words:

   > The *cakravāla* method . . . anticipated the European methods by more than a thousand years. But no European performances in the whole field of algebra at a time much later than Bhaskar's, nay nearly up to our times, equalled the marvellous complexity and ingenuity of *cakravāla*.
   >
   > — *Historica Mathematica*, vol. II, 1975: 167-84

   The reason for this kind of praise is that while Euler and Lagrange were using the so-called regular continued fractions, the *cakravāla* method is best explained in terms of half-regular continued fractions. As an illustration, we may consider the problem taken up by Bhāskarācārya, $61x^2+1=y^2$.

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[5] In "Post-Vedic Mathematic" by Bibhuti Bhushan Datta in *The Cultural Heritage of India*, ed. Priyadaranjan Ray and S.N. Sen; The Ramakrishna Mission Institute of Culture, Calcutta; vol. VI., 1986. Also quoted in *The Crest of the Peacock.*

This is the same equation which was sent by Fermat in 1657 as a challenge to Frènicle De Bessy and was solved by Lagrange a century later. The minimum solution pair is $(x, y) = (226153980, 1766319049)$ and is given by Bhāskarācārya in a few easy steps. The method by Lagrange needs 21 successive convergents of the continued fraction.

Does it mean that contemporary mathematicians need to hold Lagrange in lesser esteem than they do at present? Most emphatically not. But they do need to remember Bhāskarācārya more often than they do.

3. **Approximations to π :** The number

$$\pi := \frac{\textit{circumference of a circle}}{\textit{its diameter}}$$

is not a rational number. This means that only approximate values can be found in terms of say, a decimal expansion.

Āryabhaṭa (*b* CE 476) gave a value of π as $\frac{62832}{20000}$ which turns out to be 3.1416, accurate up to three decimal places.

Nīlakaṇṭha Somayājī (CE 1445-1545) tries to explain that π can never be a rational number and credits an earlier mathematician Madhva (CE 1340-1425) with a better approximation $\pi = 3.1415\ 9265\ 359$.

The so-called Gregory series $\tan^{-1}\theta = \theta - \frac{\theta^3}{3} + \frac{\theta^5}{5} - \cdots$ for $-1 \leq \theta \leq 1$, which reduces to the Euler seris $\frac{\pi}{4} = 1 - \frac{1}{3} + \frac{1}{5} - \cdots$, was given by James Gregory in 1667 but was given by Madhva three centuries earlier.

And of course Śrīnivāsa Rāmānujan gave several series which enabled for example, G. Chudnovsky and D. Chudnovsky in our times to get very effective series for calculating π.

4. **The Madhva-Newton Series:** The Series $\sin\theta = \theta - \frac{\theta^3}{3!} + \frac{\theta^5}{5!} - \cdots$ and $\cos\theta = 1 - \frac{\theta^2}{2!} + \frac{\theta^4}{4!} = - \cdots$ were given by Newton in 1676 but were also given by Madhva three centuries earlier.

5. **The beginnings of Differential Calculus:** Differential Calculus is credited to Newton and his contemporary Leibnitz. But in Muñjāla[6]

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[6] In some books written in English, it is mistakenly written as Mañjulā.

(CE 930) we have the beginnings and some developments are also found in Bhāskarācārya (CE 1150). Many later mathematicians contributed.

6

And of course there is the mathematics of the *śrī-yantra*.

The diagram consists of nine interwoven isosceles triangles. Four point upwards, they represent Śiva, five point downwards, they represent Śakti[7]. Two irrational numbers of great significance, π and $\frac{1+\sqrt{5}}{2!}$ need to enter in it, just as they need to enter in the Great Pyramid; $\frac{1+\sqrt{5}}{2!}$ is the "divine proportion" also known as the "golden mean." But there are models of the *śrī-yantra* which use spherical triangles and consequently the mathematics gets more complicated than it is in the case of plane triangles. Gerard Huet, a big name in Computer Science and at present director of INRIA, France, has written a computer programme to construct the *śrī-yantra*.

There is no recorded evidence that the kind of mathematical knowledge that is needed to construct the *śrī-yantra* was available to professional mathematicians in India. Kulaichev has suggested that perhaps in India "unknown alternatives to mathematical knowledge" such as a "highly developed tradition of special imagination" existed.

7

We can speculate on the character of this "highly developed tradition of special imagination" by looking at the way Śrīnivāsa Rāmnāujan did his mathematics.

Śrīnivāsa Rāmānujan was born into an Iyengar family in Tamil Nadu in 1887 and died in 1920. The thirty three years that were given to him to live remind us of the thirty two years that was the lifespan of Śrī Ādi Śaṅkarācārya. We naturally find little mention of Rāmānujan in our textbooks which are busy replacing the lifestory of one inspiring freedom fighter by the lifestory of another inspiring freedom fighter, nor was there the kind of rush to eulogize or provide financial help to his not so well-to-do family that we see in some cases which supposedly project some values like national integration, even when the centenary was observed. But there is a unique place, unclaimable by anybody else, in twentieth century mathematics occupied by Rāmānujan.

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[7] *In the Crest of the Peacock*, mistakenly the representations of Śakti and Śiva are interchanged.

To continue with our story, Rāmānujan had no formal training in University mathematics. A school textbook which he studied privately was all that he had as a help. He discovered some results and sent them to G.H. Hardy at Cambridge, who called him to UK and got some papers published. Rāmānujan was in Madras while dying and in great pain for most of the time, he jotted down some results in one hundred and thirty pages of scrap paper which were preserved with his other papers in Cambridge and discovered only in 1976; this was published and is known as *Rāmānujan's Lost Notebook.* This *Lost Notebook*, and Rāmānujan's earlier papers continue to be mined for uses in subjects ranging from Computer Science to Cosmology. But of course

> What makes Ramanujan's work so seductive is not the prospect of its use in the solution of real-world problems, but its richness, beauty and mystery — its sheer loveliness. — Kanigel in G.G. Joseph, *op. cit.*

The "mystery" has even a literal aspect; nobody knows how Rāmānujan obtained his results which need trained mathematicians of very high calibre to prove rigorously and thus establish that they are mathematical results in the established sense of the word. This task of including Rāmānujan results in regular mathematical results by proving them rigorously, is not yet complete.

Rāmānujan was asked this question in his lifetime. He replied that the results were dictated to him in dreams by his family goddess.

Results, but not the proofs.

Unknown alternative to mathematical knowledge? Highly developed tradition of special imagination? Is there anything wrong if the words used are "the family goddess"?

8

Let me return to the epigraph with which the article starts. The translation that I have provided is based on the commentary by Sāyaṇa. The words *tredhā sahasraṁ vi tadairayethāṁ* in this have been understood as recording a remarkable achievement of the two gods, namely, dividing of 1000 into 3 parts. This is of course impossible unless fractions are brought into picture. This is no small cognitive achievement, if it is kept in mind that mathematics is a cumulative science building itself along the time-axis. This is not, however, the full story.

The Vedic people were familiar with fractions. The smallest unit of time, *prāṇa*, is given to be $\frac{1}{15^5}$ of a day in *Śatapatha Brāhmaṇa*, XII.2.2-5. And indeed they knew much more. They operated for example, *without discomfort* with numbers like $\sqrt{2}$. The italicized words need some elaboration.

The Greek theory of harmony required that any two numbers be "commensurable." This means, in contemporary terms, that if l_1 and l_2 are the lengths of a stick, the ratio $\frac{l_1}{l_2}$ needs to be a rational number. This leaves the following question open: what is the length l of a stick? One may answer that a particular stick may be taken to be of unit length and then $\frac{l}{1}$ is the lenght l of the stick in question. But what happens if l is not commensurable with the length of the stick which was to be taken as the stick of unit length?

Let us leave this aside and proceed. For a very long time, the Greeks assumed that all numbers were rational. Then Pythagoras, according to certain accounts as a result of a visit to India, found that the side of a square is not commensurable with its diagonal; in modern terms, he found that $\sqrt{2}$ is not a rational number. We may recall that the *Śulba-Sūtra*s deal with irrational numbers frequently; Baudhāyana, who predates Pythagoras, provides a very good approximation, namely $\sqrt{2} = 1 + \frac{1}{3} + \frac{1}{3.4} + \frac{1}{3.4.34}$.

This discovery was disastrous because it threatened the theory of harmony. Disclosure of the fact that incommensurables existed is reported to carry the death penalty amongst the Pythagoreans; a cult-member Hippasus was thrown overboard during a voyage because he betrayed the secret. The incommensurables are still a problem to be seriously reckoned with by Plato in his Dialogues. Of Course, $\sqrt{2}$ could not be suppressed for long. It did have a silver lining however, it was "constructible." That is, you could use ruler and compass to construct a square of unit side and then of course the diagonal whose length is $\sqrt{2}$. For Greeks, a "number" was a constructible. Thus π was not a "number" because it is not a constructible; though of course its non-constructibility became known only in the nineteenth century CE.

But in 430 BC, there was a plague in Athens and the Oracle of Delos said that the way out was to double the cubic altar of Apollo while retaining its cubic shape. In mathematical terms, if x is the side of the desired cube so that its volume is x^3 and 1 is the side of the present altar so that its volume is 1, we need to solve the equation $x^3 = 2$, i.e., $x^3 - 2 = 0$.

It became known only in the nineteenth century CE that the remedy suggested by the Oracle of Delos cannot be carried out; in other words, that the solution of $x^3 - 2 = 0$ is not constructible because $x^3 - 2$ is an irreducible[8] polynomial over the field of rational numbers and further has degree 3 which is not a power of 2.

Since the plague obviously subsided without the instructions in the oracle being carried out, we in our times would conclude that the oracle "lied." The gods do play cruel games on mere humans. But is there not a message in it all, a message that conversation with gods is not to be decoded in the same manner that conversation with our own is decoded? Is there not a message that mere "construction" is not enough?

The pain of being a mere human is not bearable unless you realize that the pain of being a mere human is not bearable. Of all the societies, only the Indian society knew it.

9

Let me return to the epigraph again. The Vedic people were quite familiar with the fact that dividing of 1000 into 3 parts is impossible unless fractions are brought into picture. There is another passage in *Vedic Literature* which speaks of the Division of The Thousand into Three by Indra and Viṣṇu:

> *sā yā babhruḥ piṅgākṣī, sā somakrayaṇī yatra vā indrāviṣṇū tredhā sahasraṁ vyairayetāṁ tadekāttyaricyata tāṁ tredhā prājanayatāṁ tasmādyopyetarhi tredhā sahasraṁ vyākuryād ekaivātiricyeta.*

> This *somakrayaṇī* (young cow with which as the price the *soma* plant is being purchased for a sacrifice) is the one which remained after The Thousand

---

[8] To say that "$x^3 - 2$ is an irreducible polynomial over the field of rational numbers" means that we cannot factorize $x^3 - 2$ into polynomial of samaller degree which will have rational coefficients. Note that $x^2 - 2 = (x+\sqrt{2})(x-\sqrt{2})$ is also an irreducible polynomial over the field or rational numbers ($\therefore$ $\sqrt{2}$ is irrational), but since $x^2 - 2$ has degree 2 which is a power of 2, the problem of constructing a square whose area is double of the area of a given square is solvable.

It is perhaps worthwhile to mention that for similar reasons "the circle cannot be squared," i.e., there is no way to construct a square whose area is the same as the area of a given circle. Similarly, a line segment cannot be constructed whose length is the length of a given circle arc. It is not possible to trisect an angle, unless it is of the from $\frac{360}{n}$ where n is not divided by 3, the way every angle can be bisected. A regular pentagon can be constructed but a regular heptagon cannot.

> was divided into Three by the Twain of Indra and Viṣṇu. Therefore, whosoever divides a thousand into three parts, only one remains.
>
> — *Śatapatha Brāhmaṇa*, III.3.1-13

It will be seen that this passage from the *Śatapatha Brāhmaṇa* speaks of the failure of the Division of The Thousand into Three by Indra and Viṣṇu, not their success. Consequently, it is logical to infer that this passage is in hyperbolic praise of the *somakrayaṇī* and that the feat of Indra and Viṣṇu is not being challenged in actuality. To reduce the act of Indra and Viṣṇu to a numerical everyday act of division and the consequent quotients and remainders is no praise for either the Twain of Indra and Viṣṇu or the incomparable *somakrayaṇī*. To my mind, the two passages read in unison state that the Division of The Thousand into Three is something that the mere mortals can never hope to do, and the *somakrayaṇī* is the proof of this. But the *somakrayaṇī* is also the clue to the mystery and as long as the mortals use this clue in the right manner and try to establish communication with the gods in languages other than those grammaticated by mensuration alone, they can communicate with them. But if they try to become gods by merely interpreting the deeds of gods as mensurables which can be copied, they will be unsucessful and a remainder will prop up to record the unsuccess.

References

Bhanumurthy, T.S., *A Modern Introduction to Ancient Indian Mathematics*, Delhi: Wiley Eastern Limited, 1992.

Datta, Bibhuti Bhushan, "Post-Vedic Mathematics" in *The Cultural Heritage of India*, eds. Ray, Priyadaranjan & S.N. Sen, Calcutta: The Ramkrishna Mission Institute of Culture, vol. VI, 1986.

Joseph, George Gheverghese, *The Crest of the Peacock*, Delhi: Penguin Books, 1990.

6

Some Special Features in Procedures of Gaṇeśa Daivajña's Grahalāghavam

A Study of its Special Features

S. Balachandra Rao

Introduction

AFTER Bhāskara II (twelfth century), though there was an apparent decline in mathematical and astronomical output in India, after sometime there was a tremendous development in Kerala due to stalwarts like Madhva, Parameśvara and Nīlakaṇṭha Somāyājī.

During that period, there were a few great astronomers in other parts of India also. In fact, among the astronomical works in common use especially for *pañcāṅga* making, Gaṇeśa's *Grahalāghavam* is the most popular one. In fact, even to this day in most of northern India, Maharashtra and north Karnataka, *Grahalāghavam* (*GL*) is in use.

Gaṇeśa Daivajña's father was the famous astronomer Keśava Daivajña and his mother's name was Lakṣmī. Gaṇeśa was born in AD 1507 at a place called Nandigrāma on the western seacoast. Gaṇeśa's teacher in astronomy was his father Keśava Daivajña.

Works of Gaṇeśa Daivajña

Gaṇeśa composed several important works in astronomy. Among them *Grahalāghavam* is the most famous one. In fact, the remarkable popularity of this text surpassed his father's work *Grahakautuka*, which was great in its own right.

Some of Gaṇeśa's other works are:

(i) *Tithicintāmaṇi*

(ii) A commentary on Bhāskara's *Siddhānta Śiromaṇi*

(iii) A commentary called *Buddhivilāsinī* on Bhāskara's *Līlāvatī* and many other works.

The epoch of the *Grahalāghavam* is 19 March 1520 (Julian).

Special Features of Grahalāghavam

Gaṇeśa has simplified the method of computations of positions of planets which is otherwise laborious by the traditional method. The following are some of the special features:

(i) To avoid a large number for the *ahargaṇa*, Gaṇeśa has adopted a cycle of 4016 days, approximately about 11 solar years. Therefore, his modified *ahargaṇa* never exceeds 4016 and hence it is very handy.

(ii) For the purpose of a *pañcāṅga* maker or a beginner in astronomy who is ignorant of trigonometry, Gaṇeśa has completely avoided "sine" and "cosine" functions.

(iii) In fact, dropping of trigonometric ratios has not seriously affected the accuracy of the results. Gaṇeśa has adopted reasonably very good approximations for the trigonometric functions.

We will now consider a few important approximations given in the *Grahalāghavam*.

Mandaphala of Ravi : The usual formula according to the traditional texts:

Mandaphala of Ravi = $\frac{a}{R}\sin m$

where m = *manda* anomaly of the sun,

$a = 14°$, *paridhi* of the sun's *manda* epicycle

and $R = 360°$, *paridhi* of *kakṣa vṛtta*.

Gaṇeśa Daivajña's formula:

$$\textit{Mandaphala}\text{ of the sun } = \frac{\left[20-\frac{BMK}{9}\right]\frac{BMK}{9}}{57-\left[\left(20-\frac{BMK}{9}\right)\frac{BMK}{9}\right]\Big/9}$$

where BMK = *bhujā of mandakendra*. This formula is derivable from Śrīpati Bhaṭṭa's expression:

दोः कोटिभागरहिताऽभिहताः खनागचन्द्रास्तदीयतरणोनशरार्कदिग्भिः ।
ते व्यासखण्डगुणिता विहृताः फलन्तु ज्याभिर्विनाऽपि भवतो भुजकोटिजीवे ॥

[taking l. c.m. and multiplying the numerator and the denominator by 9 × 9]

$$\text{i.e., } \textit{mandakendra jyā} = \frac{(180-MK)MK\times 120}{10125-\dfrac{(180-MK)}{4}MK}$$

$$\approx \frac{\left(20-\dfrac{MK}{9}\right)\dfrac{MK}{9}\times 480}{500-\left(20-\dfrac{MK}{9}\right)\dfrac{MK}{9}}$$

Now, the *parama manda phalam* of the sun $=\frac{125}{57}$ degrees

$\therefore$ *Mandaphala* of the sun $=\frac{125}{57}\times\frac{MK\ jy\bar{a}}{120}$

This results in Gaṇeśa's formula.

Let $\left(\frac{a}{R}\right)\frac{180}{\pi}=\frac{125}{57}$

$\therefore a = 2\pi\times 125/57$ (taking $R = 360$)

$\cong 13^0 \cdot 778915$ (taking $\pi = 3.1416$)

Note: Based on modern value of the eccentricity of the earth's orbit, *a* lies between 11°.8078 and 12°.3128 [Balachandra Rao, *Ancient Indian Astronomy...*].

Gaṭīphalam of the Sun (True Motion of the Sun)

$$\textit{Ravi gati phalam} = \frac{\left(11-\dfrac{koṭi}{20}\right)\dfrac{koṭi}{20}}{13} \quad \ldots.(1)$$

Consider the ratio of the *trijyā*s of the *bṛhad-jyā* and *laghu-jyā*. We have

$$\frac{3438}{120}=\frac{382\times 9}{120}\cong\frac{13\times 9}{2\times 2} = \left(\frac{22-9}{2}\right)\frac{9}{2}=\left(11-\frac{9}{2}\right)\frac{9}{2}$$

$$=\left(11-\frac{90}{20}\right)\frac{90}{20}$$

Now, *paramakoṭi* = 90°, we get taking *koṭi* = 90°: the *parama-gati-phalam* = $\frac{9}{4}$ from (1). By proportion,

$$\textit{Ravi gati phalam} = \frac{\left[\left(11 - \frac{\textit{koṭi}}{20}\right)\frac{\textit{koṭi}}{20}\right]\times\frac{9}{4}}{13\times\frac{9}{4}} = \frac{\left[\left(11 - \frac{\textit{koṭi}}{20}\right)\frac{\textit{koṭi}}{20}\right]}{13}$$

Example: For *MK* = 43° 46' 18", *koṭi* = 90° - (43° 46' 18")

i.e., *koṭi* = 46° 13' 42"

∴ *Ravi gati phalam*, Δn = 1′ 32" 41‴ (*-ve*) from (1)

From the conventional formula,

$$\Delta n = -\frac{b}{R}\cos M\left(\frac{\Delta M}{\Delta t}\right)$$

Substituting the values, we have:

$$\mathrm{D}\, n = -\frac{14}{360}\left[\cos\left(43^{0}\ 46'\ 18''\right)\left(59'\ 08''\right)\right]$$

$$= -\,1'\ 39''\ 54'''$$

Comparing the *Grahalāghavam* value for the *Ravi gati phalam* (Δn) with the one obtained from the trigonometry-based formula, we observe that the difference is just about 7".

Gatiphalam [i.e., True Daily Motion] of the Moon

$$\textit{Candra gati phalam} = \left[\left(11 - \frac{\textit{koṭi}}{20}\right)\frac{\textit{koṭi}}{20}\right]\left(2 + \frac{2}{6}\right) \quad \ldots.(1)$$

Consider the ratio of the *trijyā*s of the *bṛhad-jyā* and *laghu-jyā*. We have

$$\frac{3438}{120} = \frac{382\ \times 9}{120} \cong \frac{13\ \times 9}{2\times 2}$$

$$= \left(\frac{22\ -9}{2}\right)\frac{9}{2} = \left(11 - \frac{9}{2}\right)\frac{9}{2}$$

$$= \left(11 - \frac{90}{20}\right)\frac{90}{20}$$

Now, *parama koṭi* = 90°; we get the *parama gati phalam* = $\frac{273}{4}$ from (1).

By proportion, we have

$$\textit{Candra gati phalam} = \frac{\left[\left(11 - \frac{\text{koṭi}}{20}\right)\frac{\text{koṭi}}{20}\right]\frac{273}{4}}{13 \times \frac{9}{4}}$$

$$\cong \left[\left(11 - \frac{\text{koṭi}}{20}\right)\frac{\text{koṭi}}{20}\right]\left(2 + \frac{2}{6}\right)$$

Example: Candra's *manda kendra* = $3^R 25^0 12' 17'' \equiv M$

i.e., (*manda* anomaly) $MK = 115^0 12' 17''$

$\therefore$ *bhujā* of $MK = (180^0 - MK) = 64^0 47' 43''$

koṭi of $MK = 90° - \textit{bhujā} = 25^0 12' 17''$

(i) *Candra gati phalam* [from *GL* formula] = $28' 38'' 2'''$

(ii) From the conventional formula :

$$\frac{dn}{dt} = -\frac{b}{R}\cos M\left[\frac{dM}{dt} - \frac{dA}{dt}\right],$$

where $b = 31^0, R = 360^0$, $M = 64^0 47' 43''$, $\frac{dM}{dt} = 790' 35''$,

$A \cong$ Apogee and $\frac{dA}{dt} = 6' 41''$

$\therefore$ *Candra gati phalam* = $28' 44'' 46'''$.

In the case of the moon, the difference between the values of Δn (i.e., the correction to the mean daily motion to get the true one) according to *GL* and the trigonometry-based expression is just less than 7" which is negligible.

Lunar Eclipse According to GL

The importance of the procedure for computations of eclipses in Gaṇeśa Daivajña's *Grahalāghavam* lies in the fact that the use of trigonometric ratios is dispensed with. All the same, on account of improved values of the astronomical elements, predictions of eclipses according to *GL* are fairly reliable.

The following are some important formulae for the parameters used for computations according to *GL*:

1. Sun's angular diameter $= \left[\frac{\text{Sun's true daily motion - 55}}{5}\right] + 10$ in *aṅgula*s

2. Moon's angular diameter $= \frac{\text{Moon's true daily motion}}{74}$ in *aṅgulas*

3. Shadow's aṅgular diameter = [(3/11) × Moon's aṅgular diameter + 3 × Moon's angular diameter - 8] in *aṅgula*s.

   Note : 1 *aṅgula* = 3′ of arc, i.e., 3 *kalā*s. Therefore, angular diameter in *minutes of arc* when divided by 3 gives the same in *aṅgula*s.

4. Latitude of the moon, *Śara* $\approx \frac{11}{7}(M-R)$ *aṅgula*s

   where *M* and *R* are respectively the longitudes of the moon and Rāhu. If (*M* - *R*)>90⁰, its *bhujā* must be taken.

   Note: The approximate formula follows from a general approximation given by Gaṇeśa Daivajña :

   Jyā q = $120\sin\theta \approx \frac{72}{35}\theta$ when θ is small

   (Ref: *GL*, *praśnādhikāra*, Sl.22)

   Now, the latitude (*vikṣepa* or *śara*) of the moon

   $$\beta = 270'\sin(M\text{-}R) \approx 270 \times \frac{72}{(120 \times 35)}\ (M\text{-}R)\ kal\bar{a}s$$

   i.e., $\beta \approx \frac{162}{35}(M-R)$ minutes of arc (i.e., *kalās*)

   Now, dividing by 3

   $\beta \approx \frac{54}{35}(M - R) \approx \frac{11}{7}(M - R)$ *aṅgula*s

   The approximations in this case are justified since under the possible circumstances of an eclipse (*M* – *R*) is indeed small.

   If $180^\circ < M - R < 270^0$, then its *bhujā* = (*M* - *R*) - 180°

5. The amount of obscured portion,

   Grāsa = $\frac{1}{2}$ [*chādaka* dia. + *chādya* dia.] - *śara*

   In the case of a lunar eclipse, the *chādaka* (eclipser) and the *chādya* (eclipsed) bodies are respectively the earth's shadow and the moon.

6. *Mānaikya khaṇḍa* = $\frac{1}{2}$ [*chādaka* + *chādya*] diameter

   so that we have *grāsa* = *mānaikya khaṇḍa* - *śara*

Therefore

(i) If *mānaikya khaṇḍa* < *śara* (i.e., *grāsa* < 0) there will be no *eclipse;*

(ii) if *grāsa* > *chādya* diameter, i.e., if *grāsa* > Moon's diameter, then the ***eclipse is total.***

Such an eclipse is called *khagrāsa grahaṇa.*

Example 1: Find

(i) angular diameters of the sun, the moon and the earth's shadow cone

(ii) *śara*

(iii) *grāsa* and

(iv) whether a lunar eclipse is possible given that

True Sun : $8^{s}0^{0}12'06''$, True moon : $2^{s}\ 0^{0}\ 12'06''$

Rāhu : $7^{s}28^{0}23'18''$, SDM = $61'11''$

MDM : $823'50''$

at the instant of the full-moon where *SDM* and *MDM* are respectively the true daily motions of the sun and the moon.

(i) 1. Angular diameter of the sun:

$$SDIA = (1\ /\ 5)\ (SDM - 55) + 10 \text{ } \textit{aṅgulas}$$

$$= (1/5)\ (61'11'' - 55) + 10 = 11^{ang}14^{pra}$$

where 1 *aṅgula* = 60 *pratyāṅgulas*

2. Angular diameter of the moon:

$$MDIA = \frac{823'50''}{74} = 11^{ang}\ 7^{pra}$$

3. Angular diameter of the earth's shadow cone:

$$SHDIA = [3(MDIA)/11+3(MDIA)-8] \text{ } \textit{aṅgulas}$$

$$= (3/11+3)\ MDIA - 8 \text{ } \textit{aṅgulas}$$

$$= (36/11)\ (MDIA) - 8 \text{ } \textit{aṅgulas}$$

$$= 36 \times \left(11^{ang}\, 7^{pra}\right)/11 - 8 = 28^{ang}23^{pra}$$

(ii) *Śara* : Here, we have

$$M - R = 60^0 12'06'' - 238^0 23'18''$$

$$= 181^0 48'48'' \text{ (adding } 360^0)$$

Since $M - R > 180^0$, *bhujā* $= 1^0 48'48''$

Therefore, *śara* $= 11(1^0 48'48'')/7 = 2^{ang}48^{pra}$

(iii) *Grāsa = manaikya khaṇḍa - Śara*

Here, *manaikya khaṇḍa* $= \frac{1}{2}(SHDIA + MDIA)$

i.e., *manaikya khaṇḍa* $= \frac{1}{2}(28^{ang}23^{pra} + 11^{ang}7^{pra})$

$$= \frac{1}{2}(39^{ang}30^{pra}) = 19^{ang}45^{pra}$$

grāsa $= 19^{ang}\ 45^{pra} - 2^{ang}\ 48^{pra} = 16^{ang}\ 57^{pra}$

(iv) *Since manaikya khaṇḍa* > *śara*, the eclipse is possible. Further, since *grāsa* > *MDIA* (i.e., $16^{ang}\ 57^{pra} > 11^{ang}\ 7^{pra}$) the lunar *eclipse is total* (i.e., *khagrāsa grahaṇa*).

In that case, we have

khagrāsa = *grāsa* - *chādya* diameter

= *grāsa* - *MDIA*

$= 16^{ang}\ 57^{pra} - 11^{ang}\ 7^{pra}$

$= 5^{ang}\ 50^{pra}$

(v) Half-durations of the eclipse and of totality

1. Add *śara* to the *manaikya khaṇḍa* and multiply this sum by 10; multiply this product by *grāsa* and then take the square-root of the product. Take one-sixth of the square root and subtract it from the square-root. If the result is divided by the *candrabiṁba* (i.e., the moon's diameter), we get the *madhya sthiti* (in *ghaṭikās*), i.e., the **half duration of the eclipse**.
2. In the case of a *total lunar* eclipse, a half of the *difference* between the moon's diameter and the diameter of the earth's shadow (called *mānāntara khaṇḍa*) must be taken. To that difference add *śara*, then multiply by 10. The product must be multiplied by the *khagrāsa*. Take the square-root of the result and divide the same by 6 and subtract it

from the square-root. Divide the remainder by the diameter of the moon. This will be the *marda* (i.e., **half duration of the totality**). In symbols, this means

1. **Half-duration of the eclipse :**

   Let $x = \sqrt{\left[\frac{1}{2}(SHDIA + MDIA) + \acute{s}ara\right] \times 10 \times gr\bar{a}sa}$

   Then, the half-duration

   $= (x - x/6)/(MDIA)$

   $= \dfrac{5x}{6(MDIA)}$ in *ghaṭikās*

2. **Half-duration of totality :**

   Let $y = \sqrt{\left[\frac{1}{2}(SHDIA - MDIA) + \acute{s}ara\right] \times 10 \times khagr\bar{a}sa}$

   Then, the half-duration of totality

   $= \left[y - \frac{1}{6}\,y\right]/MDIA$

   $= \dfrac{5y}{6(MDIA)}$ in *ghaṭikās*

Example: In the example considered in this section find the half-duration of the eclipse and of the totality.

1. Half-duration of the eclipse (*sthiti*)

   manaikya khaṇḍa : $19^{ang}\ 45^{pra}$
   sara : $2^{ang}\ 48^{pra}$
   Add : $22^{ang}\ 33^{pra}$

   Multiplying the above sum by 10, we have

   $10 \times 22^{ang}\ 33^{pra} = 225^{ang}\ 30^{pra}$

   Multiplying the above value by *grāsa*, viz., $16^{ang}\ 57^{pra}$, we get

   $$(225|30) \times (16|57) = 3822|13$$

   Square-root: $\sqrt{3822|13} = 61^{ang} 49^{pra}$

   Dividing by 6 : $61^{ang}\ 49^{pra}/6 = 10^{ang}\ 18^{pra}$

   Subtracting $10^{ang}\ 18^{pra}$ from $61^{ang}\ 49^{pra}$ we get $51^{ang} 31^{pra}$

Dividing the above quantity by the moon's diameter, viz., $11^{ang}7^{pra}$, we get

$(51^{ang}31^{pra})/(11^{ang}7^{pra})=4^{gh}38^{vig}$

Therefore, the **half-duration of the eclipse : $4^{gh}\ 38^{vig}$**

2. Half-duration of totality (*marda*)

Shadow's diameter : $28^{ang}\ 23^{pra}$

Moon's diameter : $11^{ang}\ 7^{pra}$

mānāntara khaṇḍa = $\frac{1}{2}\ (28^{ang}\ 23^{pra} - 11^{ang}\ 7^{pra})$

$= \frac{1}{2}\ (17^{ang}\ 16^{pra}) = 8^{ang}\ 38^{pra}$

Adding *śara* : $2^{ang}\ 48^{pra}$, we get $11^{ang}\ 26^{pra}$

Multiplying by 10 : $10 \times 11^{ang}\ 26^{pra} = 114^{ang}\ 20^{pra}$

khagrāsa = $5^{ang}\ 50^{pra}$

Multiplying, we get 666|56

Square-root : $25^{ang}\ 50^{pra}$

Dividing by 6 : $4^{ang}\ 18^{pra}$

Subtracting we get : $21^{ang}\ 32^{pra}$

Dividing by moon's diameter *MDIA*, i.e., $11^{ang}\ 7^{pra}$, we get

$$\frac{21|32}{11|07} = 1^{gh}\ 56^{vig}$$

Therefore, the **half-duration of totality** *marda* is $1^{gh}\ 56^{vig}$.

Note : 1 *ghaṭikā* = 60 *vighaṭikā*s (or *pala*s); 1 *ghaṭikā* = 24 minutes.

First and Second Halves of Eclipse and of Totality

The difference (True Sun - Rāhu) called *vyagu* at the instant of the opposition is considered and its *bhujā* is determined. The product 2 × *bhujā* (in degrees) is put in two places as *pala*s.

(i) If the *vyagu* is in an *even* quadrant, i.e., if $90^0 < vyagu < 180^0$ or $270^0 < vyagu < 360^0$ then (2 × *bhujā*) in *pala*s is *subtracted* from and added to the *madhya sthiti* (i.e., half duration in *gh*. obtained earlier), respectively to get the corrected *sparśa* and *mokṣa* half durations.

(ii) If the *vyagu* is in *odd* quadrant, i.e., if $0^0 < vyagu < 90^0$ or $180^0 < vyagu < 270^0$ then (2 × *bhujā*) in *pala*s is *added to* and *subtracted from* the *madhya* *sthiti* (i.e., the half-duration in *gh.* obtained earlier), respectively, to get the corrected *sparśa* and *mokṣa* half-durations.

Similar operations are carried out to get the first and the second half-durations of *totality* by considering the *marda* duration instead of the *sthiti.*

Example : Now, in the example considered, we have at the instant of opposition

True Sun	:	$8^s 0^\circ 12' 06''$
Rāhu	:	$7^s 28^\circ 23' 18''$
Vyagu	:	$1^\circ 48' 48''$

Since $0^\circ < vyagu < 90^\circ$, $bhuj\bar{a} = 1^\circ 48' 48''$. Now, multiplying this *bhujā* by 2, we get 3 - 37 - 36 *palas* ≈ 4 *palas*.

Again, since *vyagu* is in I quadrant (i.e., *odd*), 4 *palas*, is added to and subtracted from the *madhya sthiti*. Thus, we have :

madhya sthiti (*gh.*)	:	$4^{gh}\ 38^{palas}$	$4^{gh}\ 38^{palas}$
Add and subtract 4 *palas*	:	$+4^{palas}$	-4^{palas}
		$4^{gh}\ 42^{palas}$	$4^{gh}\ 34^{palas}$
Therefore, *sparśa sthiti*	:	$4^{gh}\ 42^{palas}$	
And *mokṣa sthiti*	:	$4^{gh}\ 34^{palas}$	

Similarly, the half-durations of *totality*, by considering the *marda* (i.e., $1^{gh}\ 56^{palas}$), are: $(1^{gh}\ 56^{palas}) + 4^{palas}$ and $(1^{gh}\ 56^{palas}) - 4^{palas}$

i.e., 2^{gh} and $1^{gh}\ 52^{palas}$ for the first and second halves of totality respectively.

Instants of Beginning and Ending of Eclipse and of Totality

1. The *parvānta*, in this case the instant of opposition, is the *middle* of the eclipse. By subtracting *sparśa sthiti* from and adding *mokṣa sthiti* to the instant of the middle, we get the beginning and ending moments of the eclipse respectively. Thus, we get the *sparśa kalā* and the *mokṣa kalā* of the lunar eclipse.
2. Similarly, subtracting from and adding to the instant of the middle of the eclipse the first and second halves of totality, we get the instants of the beginning (*sammīlanam*) and the ending (*unnmīlanam*) of the totality.

Example 1 : We have

(i) Instant of full-moon : $40^{gh}\ 48^{palas}$

Less *sparśa sthiti* : $4^{gh}\ 42^{palas}$
Sparśa kāla : $36^{gh}\ 06^{palas}$

(ii) Instant of full-moon : $40^{gh}\ 48^{palas}$
Add *mokṣa sthiti* : $4^{gh}\ 34^{palas}$
Mokṣa kāla : $45^{gh}\ 22^{palas}$

(iii) Instant of full-moon : $40^{gh}\ 48^{palas}$
Less *sparśa marda* : $2^{gh}\ 0^{palas}$
Sammīlana kāla : $38^{gh}\ 48^{palas}$

(iv) Instant of full-moon : $40^{gh}\ 48^{palas}$
add *mokṣa marda* : $1^{gh}\ 52^{palas}$
Unmīlana kāla : $42^{gh}\ 40^{palas}$

Summary of the Eclipse

		gh	*palas*
Beginning of the eclipse	:	36	06
Beginning of the totality	:	38	48
Middle of the eclipse	:	40	48
End of the totality	:	42	40
End of the eclipse	:	45	22

The timings are from the local mean sunrise.

Example 2 : The following example worked out, using the computer programme designed by us, is for May 2, 1520 AD (J), Wednesday. This eclipse occurred during the time of Gaṇeśa Daivajña [his epoch in *GL* is 19 March, 1520 AD (J)]. The date of the lunar eclipse is taken from the *Epigraphia Indica*, vol. VI, page 237.

```
                    GRAHALĀGHAVAM
           POSITIONS OF SUN, MOON AND RĀHU

(CHRISTIAN) DATE            :  YEAR : 1520   MONTH : 5   DATE : 2
TIME (AFTER SUNRISE)        :  HOURS : 0     MINS : 0
NAME OF THE PLACE           :  UJJAYINĪ
LONGITUDE (-ve FOR WEST)    :  DEG : 75      MIN : 45
LATITUDE (-ve FOR SOUTH)    :  DEG : 23      MIN : 11
WEEK DAY                    :  WEDNESDAY
CAKRAS : 0        AHARGAṆA ; 44   [EPOCH ; 19-3-1520 (J)]
```

RAVI SPHUṬA

MEAN RAVI AT UJJAYINĪ SUNRISE	:	33°	3'	0"
DEŚĀNTARA CORRECTION	:	0°	0'	0"
MEAN RAVI AT LOCAL SUNRISE	:	33°	3'	0"
MOTION FOR 0 HRS. 0 MIN.	:	0°	0'	0"
MEAN RAVI AT GIVEN TIME	:	33°	3'	0"
SUN'S MANDOCCA	:	78°	0'	0"
MEAN ANOMALY	:	44°	57'	0"
MANDA PHALA	:	+1°	32'	23"
TRUE RAVI	:	34°	35'	23"

CHANDRA SPHUṬA

MEAN MOON AT UJJAYINĪ SUNRISE	:	208°	51'	34"
DEŚĀNTARA CORRECTION	:	0°	0'	0"
MEAN MOON AT LOCAL SUNRISE	:	208°	51'	34"
MOTION FOR 0 HRS. 0 MIN.	:	0°	0'	0"
MEAN MOON AT GIVEN TIME	:	208°	51'	34"
MOON'S MANDOCCA	:	172°	25'	42"
MOON'S MANDA KENDRA (ANOMALY)	:	323°	34'	8"
MANDA PHALA (EQN. OF CENTRE)	:	-2°	58'	52"
BHUJĀNTARA CORRECTION	:	0°	3'	25"
TRUE MOON	:	205°	56'	7"

RĀHU SPHUṬA

MEAN RĀHU AT UJJAYINĪ SUNRISE	:	25°	18'	4"
DEŚĀNTARA CORRECTION	:	0°	0'	0"
MEAN RĀHU AT LOCAL SUNRISE	:	25°	18'	4"
MOTION FOR 0 HRS. 0 MIN.	:	0°	0'	0"
MEAN RĀHU AT GIVEN TIME	:	25°	18'	4"

DO YOU WANT ECLIPSE / PLANETS' COMPUTATION ? (E/P) ? E

LUNAR ECLIPSE
ACCORDING TO
GRAHALĀGHAVAM

AT 6 HRS (LMT) ** TRUE SUN : 34.58963 TRUE MOON : 205.9354 NODE: 25.30124

SUN'S TRUE DAILY MOTION	:	57' 30"
MOON'S TRUE DAILY MOTION	:	736' 15"
MOON'S DISTANCE FROM OPPN.	:	8^0 39' 15"
TIME OF OPPN. AFTER MIDNIGHT (LMT)	:	24*H* - 21*M* - 37*S*
TRUE SUN AT OPPN.	:	35^0 19' 22"
TRUE MOON AT OPPN.	:	215^0 19' 22"
NODE AT OPPN.	:	25^0 15' 39"
MOON'S DIAMETER (in *aṅgula*s)	:	9.949405
SHADOW'S DIAMETER (in *aṅgula*s)	:	24.56169

ECLIPSE IS POSSIBLE

SARA (in *aṅgula*s)	:	15.81192
GRĀSA (in *aṅgula*s)	:	1.443631

LUNAR ECLIPSE IS PARTIAL

MADHYA STHITI (in *ghaṭī*s)	:	1.829996
SPARŚA STHITI (in *gh.*)	:	2.165401
MOKṢA STHITI (in *gh.*)	:	1.494592

SUMMARY OF THE LUNAR ECLIPSE

AFTER MIDNIGHT PRECEDING 2/5/1520		LOCAL	MEAN	TIME
SPARŚA (BEGINNING) TIME	:	23 H -	29 M -	39 S
MADHYA (MIDDLE) OF ECL.	:	24 H -	21 M -	37 S
MOKṢA (ENDING) TIME	:	24 H -	57 M -	29 S

Appendix

The rational approximation for sine used by Gaṇeśa and Śrīpati is based on the expression given by Bhāskara I (late sixth century AD) and discussed below.

In his *Mahābhāskarīyam*, Bhāskara I has given an interesting approximate formula (*MBh.*, VII. 17-19) for calculating Rsine of an acute angle without using the table. His formula, cancelling the constant R, is

$$\sin\,\theta = \frac{4\,(180^\circ - \theta\,)\,\theta}{\left[40500 - (180^\circ - \theta)\theta\right]} \qquad \ldots (1)$$

where θ is in degrees.

Now, if θ is in radians, the above formula takes the form

$$\sin\,\theta\; = \frac{16\,\theta\,(\pi - \theta)}{\left[5\pi^2\; - 4\theta\,(\pi - \theta)\right]}$$

Note : Bhāskara's formula is valid for any angle from 0° to 360°. If *A* is any such angle, take θ equal to *A* or (180° - *A*) or (*A* - 180°) or (360° - *A*) according as *A* is in I or II or III or IV equadrant.

The following is a rationale, due to Prof. K.S. Shukla, of this approximate formula : In Fig. 1 let *CA* be the diameter of a circle of radius *R*, where arc *AB* is equal to θ degrees and *BD* = *R* sinθ. Then

Area of triangle *ABC* = $\frac{1}{2}AB.\ BC$

Also, area of triangle *ABC* = $\frac{1}{2}\ AC.BD$

Therefore, $\frac{1}{BD} = \frac{AC}{AB.BC}$

so that $\frac{\theta 1}{BD} > \frac{AC}{(\text{arc}\,AB)\times(\text{arc}\,BC)}$

Let $$\frac{1}{BD} = \frac{x.AC}{(\text{arc}\,AB)\times(\text{arc}\,BC)} + y$$

θ θ

$$= \frac{2xR}{\theta(180 - \theta)} + y$$

so that $$R\sin\theta = \frac{\theta(180 - \theta)}{2xR + \theta(180 - \theta)y} \qquad \ldots (2)$$

Putting θ = 30° in (2), for example, we get

$$\frac{1}{2}R = \frac{30\times150}{2xR + 30\times150y}$$

i.e., $$2xR + 4500y = \frac{9000}{R} \qquad \ldots (3)$$

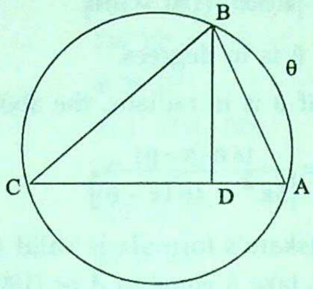

fig. 1

Again, Putting $\theta = 90^0$ in (2), we have

$$2xR + 8100y = \frac{8100}{R} \qquad \ldots(4)$$

From (3) and (4) we get

$$y = -\frac{1}{4R} \quad \text{and} \quad 2xR = \frac{40500}{4R}.$$

Therefore from (2) we have

$$R\sin\theta = \frac{4\theta(180-\theta)R}{40500-\theta(180-\theta)}$$

which is the required result (1) with a constant factor R in the numerator and in the denominator.

Note : Both Āryabhaṭa I and Bhāskara I have taken $R = 3438'$.

In fact, 1 Radian $= \dfrac{180^0}{\pi} \approx \dfrac{180^0}{3.1416} \approx 57^0\ 17'.7468 \approx 3438' \equiv R$

The sine values according to Bhāskara I's formula (1) are compared with the actual values (obtainable from calculators or tables) correct to 3 decimal places for angles from 0^0 to 90^0 at intervals of 10^0 in Table 1.

Table 1: Bhāskara's Sine Values of Angles

Angle	*sin A*		*Angle*	*sin A*	
A	*Bhāskara's*	*Actual*	*A*	*Bhāskara's*	*Actual*
0^0	0.000	0.000	50^0	0.765	0.766
10^0	0.175	0.174	60^0	0.865	0.866
20^0	0.343	0.342	70^0	0.939	0.940
30^0	0.500	0.500	80^0	0.985	0.985
40^0	0.642	0.643	90^0	1.000	1.000

We see from the table that the values from Bhāskara's approximation formula (1) are the same as the actual ones upto the second decimal place. Only in the third decimal place there is an error only by one digit immediately higher or lower, i.e., a maximum error of + 0.001. This error is insignificant in the type of further computations involved.

Formula (1) has been extensively used by later Indian mathematicians.

In the history of the world mathematics Bhāskara I gets the credit of being the first to give such a simple and good rational approximation formula for the sine of an angle A in terms of A as early as about fourteen centuries ago.

Conclusion

We have discussed the procedures of the *Grahalāghavam* for computations of true daily motion of the Sun and the Moon and of lunar eclipse. The expressions used by Gaṇeśa Daivajña are much simpler than the ones given in other standard texts. The approximations made by Gaṇeśa Daivajña are reasonable. The results are quite comparable to the modern ones. This explains why the *Grahalāghavam* is very popular among the *pañcāṅga* makers in major parts of the country even today.

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Bibliography

Āryabhaṭīyam of *Āryabhaṭa* I — (1) Cr. ed. and tr. with notes K.S. Shukla and K.V. Sarma, INSA, New Delhi, 1976; (2) With Nīlakaṇṭha Somasutvan's comm., ed., and published (in 3 parts), K. Sambasivasastri, Trivandrum, 1977 (Reprint).

Balachandra Rao S., *Ancient Indian Astronomy — Planetary Positions and Eclipses*, BRPC Ltd., New Delhi, 2000.

———, *Indian Astronomy — An Introduction*, University Press, Hyderabad, 2000.

———, *Indian Mathematics and Astronomy — Some Landmarks*, 3rd edn., Jnana Deep Publications, 2388, 13th Main, A-Block, Rajajinagar II stage, Bangalore - 560 010, 2003.

———, *Āryabhaṭa I And His Astronomy*, Rashtriya Sanskrit Vidhyapeetha, Tirupati, 2003.

———, *Bhāskara I And His Astronomy*, Rashtriya Sanskrit Vidhyapeetha, Tirupati, 2003.

———, *et al.*, "Lunar Eclipse Computation in Indian Astronomy with Special Reference to Grahalāghavam," *Ind. J. of His. of Sc.*, vol. 38, no.3, Sept. 2003, INSA, New Delhi, 2003.

Brahma-Sphuṭa-siddhānta of Brahamagupta, ed. with *Vāsanā* comm. Ram Swarup Sarma (4 vols.), Ind. Inst. of Ast. & Skt. Res., New Delhi, 1966.

Grahalāghavam of Gaṇeśa Daivajña, — (1) With Skt. Comm. of Viśvanātha Daivajña and Mādhurī Skt-Hindi comm. Yugeśvara Śāstrī, Benares, 1946; (2) With Skt. Comm. of Mallāri and Viśvanātha and Hindī Com. by Kedāranātha Jośī, Varanasi, 1981.

Karaṇa Kutūhalam of Bhāskara II , Eng. tr. with Notes and Comp. Prof., S. Balachandra Rao S.K. Uma (in press).

Mahābhāskarīyam of Bhāskara I — (1) Cr. ed. with *Bhāṣya* of Govindasvāmin and Super-Com. *Siddhānta Dīpikā* of Parameśvara, T.S. Kuppanna Sastri, Madras, 1957. (2) Ed. With tr., notes and comments K.S. Shukla, Lucknow University, 1960.

Sriram, M. S., *et al.*, ed., *500 years of Tantrasaṁgraha*, Indian Institute of Advance Study, Shimla, 2002.

Sūrya Siddhānta — (1) Tr. Rev. E. Burgess, ed. Phanindralal Gangooly with Intr. by P.C. Sengupta, Motilal Banarsidass, Delhi, 1989; (2) Ed. with Parameśvara's comm. K.S. Shukla, Lucknow University, 1957.

angotri

7

Philosophy and Science in Indian Texts

Ravi Khanna

OUR dependence on the Western system that we inherited from the British has run its full course. This very West is tiring with its technologies and fragmented areas of specializations, and looking seriously towards the East for alternative, *holistic* systems of knowledge. This is best summarized in the article "How Your Mind can Heal Your Body" in *Time Magazine*, Special Issue (20 January, 2003):

> If you close your eyes and think about it for a while, as philosophers have done for centuries, the world of the mind seems very different from the one inhabited by our bodies. The psychic space inside our heads is infinite and ethereal; it seems obvious that it must be made of different stuff than all the other organs. Cut into the body, and blood pours forth. But slice into the brain, and thoughts and emotions don't spill out onto the operating table. Love and anger can't be collected in a test tube to be weighed and measured.
>
> René Descartes, the great seventeenth-century French mathematician and philosopher, enshrined this metaphysical divide in what came to be known in Western philosophy as mind-body dualism. Many Eastern mystical traditions, contemplating the same inner space, have come to the opposite conclusion. They teach that the mind and body belong to an indivisible continuum.
>
> In the past, doctors and scientists have tended to dismiss that view as bunk, but the more they learn about the inner workings of the mind, the more they realize that in this regard at least, the mystics are right and Descartes was dead wrong.
> —p. 35

But this is exactly what Lord Kṛṣṇa explained to Arjuna in *Gītā* (7.2) thousands of years ago . . . that "both the internal and the external domains of knowledge are important to reach Me, the Ultimate reality. . ."

> ज्ञानं ते ऽहं सविज्ञानमिदं वक्ष्याम्यशेषतः ।
> यज्ज्ञात्वा नेह भूयो ऽन्यज्ज्ञातव्यमवशिष्यते ॥
>
> *jñānaṁ te 'haṁ savijñānam idaṁ vakṣyāmī aśeṣataḥ* ।
> *yat jñātvā neha bhūyo 'nyat jñātavyam avaśiṣyate* ॥
>
> — Sw. Chidbhavananda 1974: 414
>
> I shall teach you in full this (self) realization combined with the (external) knowledge, which being known, nothing more here remains to be known.

Rāmānuja interprets this more closely and explains that — "*jñāna* is knowledge of (Me) the Universal Truth whereas *vijñāna* is the study of Myself in multitudinous distinctive forms that this Truth disperses into — both animate and inanimate." (p. 178) In other words *jñāna* is meditative and draws towards the underlying Oneness of all things, while *vijñāna* is external — it measures, dissects, analyses. As the aspirant or *sādhaka* painstakingly collects the knowledge of smaller truths step by step, he reverses this dispersal in his own consciousness, tending towards *prajñānaṁ Brahman* (प्रज्ञानं ब्रह्म)[1] or the Ultimate Truth, paradoxically the Unknown.

The Sanskrit word for truth is *satyam* (सत्यम्) which S. Radhakrishnan[2] explains as follows :

> The *Bṛhadāraṇyaka Upaniṣad* (V.5.1) argues that *satyam* consists of three syllables, *sa*, *ti*, *yam*, the first and the last being real and the second unreal, *madhyato anṛtam*. The fleeting is enclosed on both sides by an eternity which is real. . . .

So the entire educational process should chip away at this ephemeral *ti* and lead the student to *saṁyam* (संयम) or equipoise.[3]

This synthesis of *Jñāna-Vijñana* "Knowledge and Science" started in the West with the need to modify Classical Mechanics in the 1920s. The scientific dilemma of this time has been precisely outlined by P.A.M. Dirac in the introduction of his textbook on *Quantum Mechanics*:

> The necessity to depart from classical ideas when one wishes to account for the *ultimate* structure of matter may be seen, not only from experimentally

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[1] This is the first of the *Mahākāvyas* — *Aitareya Āraṇyaka*, II.6 (*Ṛgveda*).

[2] See S. Radhakrishnan, Introduction of *The Principal Upaniṣads*, Oxford University Press, p. 81, 1992, p. 232.

[3] Or *sama* (सम) — Uniformity or complete Order.

> established facts, but also from general philosophical grounds. In a classical explanation of the constitution of matter, one would assume it to be made up of a large number of small parts and one would postulate laws for the behaviour of these parts, from which the laws of matter in bulk could be deduced. This would not complete the explanation, however, since the question of the structure and stability of the smaller parts is left untouched. To go into this question, it becomes necessary to postulate that each constituent part is itself made up of smaller parts, in terms of which its behaviour is to be explained. There is clearly no end to this procedure, so that one can never arrive at the *ultimate* structure of matter on these lines. So long as *big* and *small* are merely relative concepts, it is no help to explain the big in terms of the small.
>
> At this stage it becomes important to remember that *science is concerned only with observable things and that we can observe* an object only by letting it interact with some outside influence. . . . The concepts of *big* and *small* are then purely relative and refer to the gentleness of our means of observation as well as to the object being described. In order to give an absolute meaning to size, such as is required for any theory of the ultimate structure of matter, we have to assume that *there is a limit to the fineness of our powers of observation — a limit which is inherent in the nature of things and can never be surpassed by improved technique or increased skill on the part of the scientist. . . .*
>
> — Dirac 1974:13

But the *jñāna* of the Upaniṣads starts at this point and *Bṛhadāraṇyaka Upaniṣad* (III.8.8) says of *Brahman*, the *Ultimate* that cannot be known:

> सः ह उवाच। ऐतद् वै तद् अक्षरम्। गार्गि। ब्राह्मणाः अभिवदन्ति। अस्थूलम। अनणु। अह्रस्वम। अदीर्घम। अलोहितम। अस्नेहम। अच्छायम्। अतमः। अवायु। अनाकाशम्। असङ्गम्। अरसम्। अगन्धम्। अचक्षुष्कम्। अश्रोत्रम्। अवाग्। अमनः। अतेजस्कम्। अप्राणम्। अमुखम्। अमात्रम्। अनन्तरम्। अवाह्यम् ष न तद् अश्नति किंचन। न तद् अश्नति कश्चन।।
>
> He said: That, O Gārgī, the knowers of *Brahman*, call it the Imperishable. It is neither gross nor fine, neither short nor long, neither glowing red (like fire) nor adhesive (like water), (It is) neither shadow nor darkness, neither air nor space, unattached, without taste, without smell, without eyes, without ears, without voice, without mind, without measure, having no within and no without. It eats nothing and no one eats it.[4]

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[4] See S. Radhakrishnan, Introduction, *The Principal Upaniṣads*, Oxford University Press, 1992, p. 232.

So this, the *Brahman*, is the very fabric of reality . . . and yet not reachable and at another place in the same Upaniṣad (*Bṛhadāraṇyaka Upaniṣad*, II.36) the famous *neti neti* (not this not this) argument sums this up — now therefore there is the teaching, not this not this for there is nothing higher than this, that He is not this. Now the designation for him is the truth of truth. Verily, the vital breath is truth, and He is the truth of that. (see *fig.* 1).

This *limit which is inherent in the nature of things* was tackled by the minds of a whole bunch of scientists like Bohr, Pauli, Schrödinger, Heisenberg, Dirac, De-Broglie which led to the development of Quantum Mechanics — this is best excerpted in the words of John Wheeler, a physicist, who worked with Niels Bohr, the main force behind QM:[5]

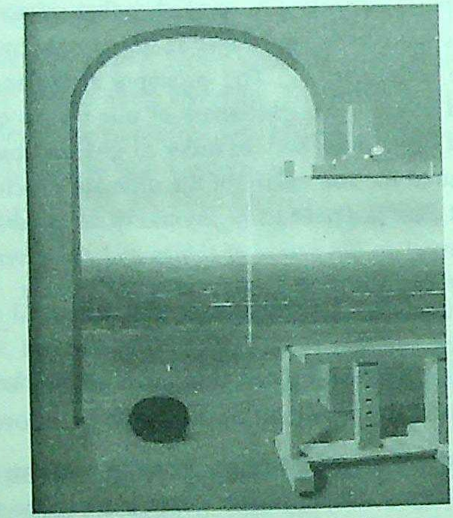

fig. 1: The Human Condition
by René Magritte

> Nothing is more important about the quantum principle than this, that it destroys the concept of the world as "sitting out there," with the observer safely separated from it by a 20 centimeter slab of plate glass. Even to observe so miniscule an object as an electron, he must shatter the glass. He must reach in. He must install his chosen measuring equipment. It is up to him whether he shall measure position or momentum.[6] To install the equipment

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[5] Please see 'Brahma' by Emerson *Appendix: Poetry* that immediately follows this paper.

[6] In fact, this duality arises out of the "incessant movement" of the sub-atomic particles — *Īśāvāsya Upaniṣad — īśāvāsyam idam sarvam, yat kim ca jagatyām jagat. . .*

> to measure the one prevents and excludes his installing the equipment to measure the other. Moreover, the measurement changes the state of the electron. The universe will never afterwards be the same. To describe what has happened, one has to cross the old word "observer" and put in its place the new word "participator." In some strange sense the universe is a participatory universe. — in M. Talbot 1986:15

Fritjof Capra[7] writes in *The Web of Life*:

> This is how quantum physics shows that we cannot decompose the world into independently existing elementary units. As we shift our attention from macroscopic objects to atoms and subatomic particles, nature does not show us any isolated building blocks, but rather appears as a complex web of relationships between the various parts of a unified whole.

The Upaniṣadic concept of *ātman* was now touched upon by the West. To truly understand this let us start with the words of S. Radhakrishnan:

> . . . as *Brahman* is the eternal quiet underneath the drive and activity of the Universe, so Ātman is the foundational reality underlying the conscious powers of the individual. — P. 73

The various Hymns of Creation in Vedic writings dwell on this *Brahman-ātman* dichotomy in a variety of ways — it is like a matrix of metaphysical concepts. The author-*ṛṣi*s tip-toe through ontological and conceptual difficulties with the help of myths and metaphors. Paul Deussen gives an extensive review of the Vedic literature and says:

> The motive of the conception that dominates all these passages may be described to be the recognition of the first principle of the universe as embodied in nature as a whole, but especially and most of all in the soul (the universal and the individual). Hence the idea arose that the primeval having created the universe, and then as the first born of the creation entered into it. — p. 183

(See Appendix — "Poetry" — "MAN" by A.C. Swinburne)

Let us first look at a part of *Bṛhadāraṇyaka Upaniṣad* (1.4.10) — The first *adhyāya* belongs to the Madhukāṇḍa — and its fourth *Brāhmaṇa* is titled *The Creation of the World from the Self* by S. Radhakrishnan :

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[7] Fritjof Capra highlights his East meets West doctrine in his famous "The Tao of Physics" — The Section III of this book is called "The Parallels" — here the author compares mathematical formulae on one side with Sanskrit *ślokas* on the other . . . and asks, are they equivalent ?

ब्रह्म वा इदम अग्र आसीत् तद आत्मानम् एवावेत् अहं ब्रह्म अस्मि इति ॥ तस्मात् तत् सर्वम् अभवत्
तद् यः यः देवानाम् प्रत्यबुध्यत स एष तद् अभवत् तथा ऋषीणाम् तथा मनुष्याणाम् तद् ह एतद् पश्यन्
ऋषिः वामदेवः प्रतिपेदे अहं मनुः अभवम् सूर्यः च इति । तद् इदम अपि एतर्हि य एवं वेदा अहं ब्रह्म
अस्मि इति स इदम् सर्वम् भवति तस्य ह न देवश्चनाऽभूत्या ईशते । आत्मा हि एषाम् सः भवति अथ
यो अन्याम् देवताम् उपास्ते अन्यो असौ अन्यो अहम् अस्मि इति न स वेद यथा पशुरेवँ स देवानाम् ।

Indeed, this world was in the beginning *Brahman* itself, which alone knew itself. And it realized : "I am *Brahman* !" Through that it became this world. And whoever among the gods became aware of this (through the knowledge : "I am *Brahman*"), he became just the same; and so also among the *ṛṣi*s (seers) as also among men. Realizing this, Vāmadeva, the *ṛṣi*s exclaimed :

"I was once Manu, I was once the Sun." And also even today he, who realizes this "I am Brahman," becomes this universe: and also the gods have no power to produce that which he will not. Because he is the soul (*ātman*) of the same. Now he, who adores any other godhead (than the *ātman*, the self) and says : "It is different, and I am different," does not know; he is just like a domestic animal of the gods.

— *Ṛgveda* (IV.261)

This *śloka* includes (अहम् ब्रह्म अस्मि) the second of the *mahāvākya*s. It very succinctly relates the Unknown *Brahman* to the *ātman*. Thus, the individual consciousness realizes "Itself" as the central "I."

> . . . Douglas R. Hofstadter explains this beautifully when he introduces M.C. Escher's "The Drawing Hands" as, what he calls, the *Tangled Hierarchy*.
>
> — p. 690

Here a left hand (LH) draws a right hand (RH), while at the same time, RH draws LH (*fig*. 2). Once again, levels which ordinarily are seen hierarchical — that which draws, and that which is drawn — turn back on each other creating a *Tangled Hierarchy*. Note that behind this lurks the undrawn but the drawing hand of M.C. Escher, creator of both the LH and RH.

Thus there are *three* hands in this lithograph — *Brahman* the undepicted hand of the artist; LH and RH both simultaneously appearing as *ātman*, the soul, the *participator* and "I," the individual consciousness, the *observer*.

Let us quickly look at the "etymology" of *ahaṁ* (अहं)[8] . . . it is given in explicit detail in the *Aitareya Āraṇyaka* (Keeth 1989 : 690) in the 2nd part, 3rd *adhyāya*, sixth to the eighth verse. The "Hymn of Creation" comes next, which

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[8] Grammatically *ahaṁ* (अहं) is the nom.-sing. of *asmad* (अस्मद्) — "I" — Pāṇini, VIII.1.20-23.

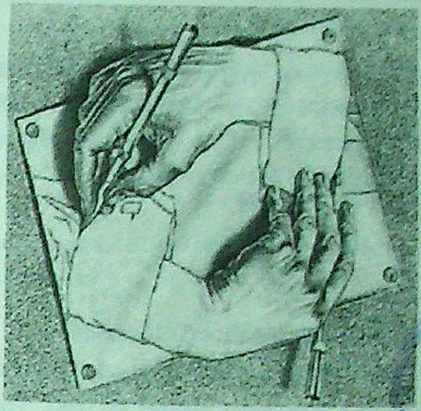

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fig. **2 : The Drawing Hands**
by M.C. Escher (Lithograph, 1948)

is the *Aitareya Upaniṣad* (2.3.6) itself, from the 4th to the 6th *adhyāya* of the *Āraṇyaka*:

> . . .अकारो वै सर्वा वाक्सैषा स्पर्शः उष्म् अभिर्व्यज्यमाना बव्ही नाना रूपा भवति। तस्यै यदुपांशु स प्राणोऽथ यद् उच्चैः तत् शरीरं तस्मात् तत् तिर इव तिर इव ह्यशरीरमशरीरो हि प्राणोऽथ यद् उच्चैः तत् शरीरं तस्मात् तद् आविर आविर्हि शरीरम् ।
>
> . . ."*a*" is the whole of speech and being manifested through the mutes and the sibilants it becomes manifold and various. If uttered in a whisper it is this *prāṇa*, if forcefully, that body (*śarīra*). Therefore it is hidden, as hidden as the previous body encapsulated in this *prāṇa*. But spoken forcefully it is that body and visible, for body is visible.

a (अ)[9] is a suffix in every *sparśa* or "mute consonant" — i.e., from (क) to (म) and in the sibilants (श, ष, स, ह). This is a very interesting structure in Sanskrit. Not only is *a* (अ) a suffix in every consonant of the alphabet pervading through every spoken word or sentence, it is also the symbol for *Brahman*, the Unknown . . . and this is precisely what is stated in 2.3.8.6:

> अ इति ब्रह्म तत्र आगत् अहम् इति ॥
>
> *Brahman* is called *a* (अ) and the individual "I" is contained therein. This is reconfirmed in *Gītā* (10.33):

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[9] *a* (अ) is an open (विवृत) vowel having an utterance from the expanded throat — it has no corresponding semi-vowel.

अक्षराणाम् अकारो अस्मि द्वन्द्वः विष्णु सामासिकस्य च। अहम एव अक्षयः कालोः धाता अहं विश्वतोमुखः।

I am the letter "*a*" among the vowels of the alphabet and the *dvandva* compound in relation to the words collectively. I am endless time. I am the Dispenser facing everywhere.[10]

अक्षराणाम् अकारो अहमिति विष्णुः स्वयं ब्रुवन

Lord Viṣṇu himself proclaimed — I am the "*a*" among the vowels.
— in Vidhata Mishra 1972: 68

Now *a* (अ) is the immutable, the symbolic *Unknown* — if, this is the "whisper" — as explained in *Aitareya Ārayaṇaka* (II.3.6) above, then as we force the breath just a little, what we get is its aspirate sound *aḥ* (अह). This can also be written as (अः) which is the *visarga* sound, and is grouped as *a-yogavāha* meaning : "those (sounds) that occur (in the actual language) without being part of the alphabet" . . . another very interesting aspect of the structure of Sanskrit language!

If we see the *fig*. 3 — another level of symmetry emerges — *aḥ* (अः)[11] closes the circle *pictorially signifying the internal-external division*. The "individual ego," the *ahaṁkāra* (अहंकार) has taken form — there is an inside and there is an outside — with the language of consciousness as the dividing *membrane*!

The last but not the least is the affirmation of this by twin *śloka*s of *Bṛhadāraṇyaka Upaniṣad* (V.5.3 & 4) — the 1st *śloka* says that at the beginning of this Universe there was just water and from this germinated *satyam*, the truth which is likened to the *Brahman* (this *śloka* gives the three syllables of *satyam* cited earlier). The 2nd *śloka* says — what is true is the yonder sun *ādityaḥ*. The *puruṣa* who is there in the *maṇḍala* and the *puruṣa* who is here in the right eye, these two rest in each other. The 3rd *śloka* invokes the *Gāyatrī* equating the head, arms and the legs to *bhū*, *bhuvaḥ*, *svaḥ* and says that the name of the *puruṣa* in the *maṇḍala* is *aḥ* (अहः). The 4th *śloka* is identical to the previous except for the name of the *puruṣa* in the right eye, it is *aham* (अहं).

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[10] "God is an intelligible sphere, whose centre is everywhere and circumference nowhere" — see "The Fearful Sphere of Pascal" an essay in "Labyrinths" by Jorge L. Borges, Penguin.

[11] The *bīja* sound for the 7th *cakra* — *sahasrāra cakra* is the *visargaḥ*; 5th — *viśuddha cakra* is 'ह'.

This is the Eastern basis of the Anthropic Principle. The Vedas are very firm on this Principle — "The world is because I the individual consciousness am there to observe it — I create my own *māyā*." But before we go on to that let us look at the code and symmetry which I see in the Sanskrit language and I feel the basis of any new educational programme should be to decipher this knowledge meticulously — based on metaphors, mathematics, science. . . . [See Appendix "Poetry" — "I" (Āmi) by R. Tagore]

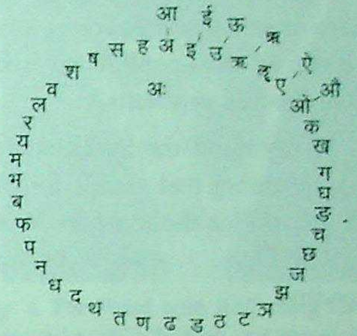

fig. 3 : The Sanskrit-Alphabet Ring

Erwin Scrhödinger was one of the main exponents of QM and was responsible for combining the *wave* and *particle* duality in one mathematical framework — called Complex Numbers. As we count backwards — let us say from 5 we go 4, 3, 2, 1 and we reach zero by Āryabhaṭa in *c.* CE 476, which is our famous, universally accepted contribution to the numbers game. Beyond this start the negative numbers or -1, -2, -3, and so on. Any number can be "squared" that is multiplied by itself however the reverse is *only true of positive numbers*. That is, the "square root" of 4 is written as $\sqrt{4}$ and is the number 2 — because 2 × 2 = 4. The "square root" of three is not a whole number but it can show up on a calculator as 1.73205 . . . and when this is multiplied by itself we come back to 3 or 2.9999 (due to calculator decimal limit). . . . However there is no square root of -1, or $\sqrt{-1}$ is *an undeterminable quantity* and can only be represented by a symbol. And this symbol is *i*. (This actually stands for the word *imaginary* since these numbers originated in the sixteenth century as "imaginary" solutions for the quadratic and cubic equations of Algebra).[12]

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[12] In *c.* CE 825 an Arabian mathematician Mûsâ al-Khowârizmî borrowed from the works of Brahmgupta, a seventh-century CE Indian mathematician, and the earlier Greeks to evolve *Hisab al-Jabr*. Four centuries later it became "Algebra" in the West.

A Complex Number z is written as . . . $z = a + ib$. . . . here *a* is called the *real* part and *b* the *imaginary* part. The beauty of this formalism is that we can do all sorts of arithmetical jugglery with z as if it is just one variable but it carries with it *two concepts* simultaneously — that of the *real a* and that of the *unreal* or *imaginary b*. And this is exactly what Scrhödinger used to integrate the duality of QM.[13] He carried the "particle" concept of matter as the *real* part and the "wave" concept as the *imaginary* part of the Complex Number and instead of z called the variable " ψ," the Greek letter "psi" (looks like the *triśūla*, doesn't it !).[14] This was one of the major breakthroughs of early twentieth-century science and the entire basis of semi-conductors and subsequent electronic revolution has been based on this synthesis.

Now to sum up . . . to my mind the Sanskrit language is this and *much more* the — (अ) is like $\sqrt{-1}$, a symbol that stands for *an undeterminable quantity*; (ह) for the *imaginary* part and (म) for the *real* part. Words like *ayam* (अयम्); *ātma* (आत्म); *idam* (इदम्); *adaḥ* (अदः), etc., . . . seem to be framed on the same lines, with the same type of coding.

Hofstadter, in his book *Gödel, Escher & Bach* consider "The Three Spheres" in which every part of the world seems to contain, and be contained in, every other part: the writing table reflects the spheres on top of it, the spheres

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[13] Earlier in the century Einstein had used the same Complex Algebra to integrate the concepts of Space and Time. . . . . . . $x + i\,ct$. . . .where x is the space variable, c the speed of light and t is the time variable.

[14] In fact, E.S. was a great believer in the Upaniṣads, he writes in his book *Mind and Matter*, p. 128 — "The reason why our sentient, percipient and thinking ego is met nowhere within our scientific world picture can easily be indicated in seven words: because it is itself that world picture. . . . There is obviously only one alternative, namely the unification of minds or consciousnesses. Their multiplicity is only apparent, in truth there is only one mind. This is the doctrine of the Upaniṣads.". . . He goes on to say about this in another book *What is Life* ? . . . "The only possible alternative is simply to keep to the immediate experience that consciousness is a singular of which the plural is unknown; that there is only one thing and that what seems to be a plurality is merely a series of different aspects of this one thing, produced by a deception (the Indian MĀYĀ); the same illusion is produced in a gallery of mirrors, and in the same way Gaurishanker and Mt Everest turned out to be the same peak seen from different valleys." . . . . "Dating back some 2500 years or more from the early great Upaniṣads the recognition ATHMAN = BRAHMAN (the personal self equals the omnipresent, all-comprehending eternal self) was in Indian thought considered, far from blasphemous, to represent the quintessence of deepest insight into the happenings of the world."

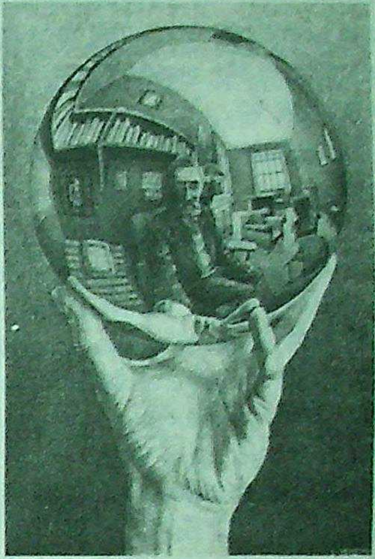

fig. **4. The Hand with Reflecting Globe**
Self-Portrait by M.C. Escher — (Lithograph, 1935)

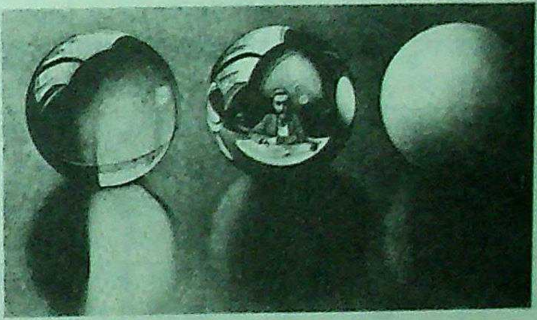

fig. **5 : The Three Spheres**
by M.C. Escher (Lithograph, 1946)

reflect each other, as well as the writing table, the drawing of them, and the artist drawing it. The endless connections which all things have to each other is only hinted at here, yet the hint is enough. The allegory of "Indra's Net" tells of an endless net where every individual *ātmā* is a crystal bead. The great light of "Absolute Being" illuminates and penetrates every crystal bead; moreover, every crystal bead reflects not only the light from every other crystal in the net — but also every reflection of every reflection throughout the universe. . . . To my mind, this brings forth the image of renormalized particles: in every electron, there are virtual photons, positrons, neutrinos, muons and so on each in every other. . . . But then another image rises: that of people, each one reflected in the minds of many others, who in turn are mirrored in yet others, and so on.

Let us then look at the Sanskrit Alphabet itself, its *varṇa*s (वर्ण), its structures, its symmetries:

Table 1(a) : The Sanskrit Vowels

Pure Vowel	अ ब्रह्म α^1	इ α^0	उ	ऋ	ऌ	हृस्व (एक मात्रिक)	स्वर
Lengthened Form	आ	ई ईश्वर	ऊ	ऋ		दीर्घ (द्वि मात्रिक)	
Impure Vowel (Diphthongs)	ए (अ+इ)	ऐ (अ+ई)	ओ ॐ (अ+उ)	औ (अ+ऊ)		मिश्रित	

Table 1(b) : The Sanskrit Consonants

	पुरुष व्यञ्जन		कोमल व्यञ्जन		अनुनासिक	स्पर्श	
Gutturals	क 1	ख -1	ग 2	घ -2	ङ	क वर्ग	Mutes
Palatals	च 3	छ -3	ज 4	झ -4	ञ	च वर्ग	व्यञ्जन Consonants
Cerebrals	ट 5	ठ -5	ड 6	ढ -6	ण	ट वर्ग	˙ अनुस्वार
Dentals	त[15] 7	थ -7	द[16] 8	घ -8	न	त वर्ग	ँ अनुनासिक ः विसर्ग
Labials	प 9	फ -9	ब 10	भ -10	म	प वर्ग	अल्पप्राण
Semi-Vowels	य (इ + अ)	र[17] (ऋ + अ)	ल (ऌ + अ)	व[18] (उ + अ)		अन्तःस्थ	महाप्राण aspirate
Sibilants (fricatives)	श	ष	स[19]	ह		ऊष्म	

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[15] Please see F., Cramer, *Chaos and Order*, New York,: VCH Publishers, 1993.

[16] See *Aitareya Arāṇyaka* (I.3.3) — *"tat" aur "tatat."*

[17] See *Bṛhadāraṇyaka Upaniṣad* (V.2.1) — *"da" kā artha.*

[18] See *Bṛhadāraṇyaka Upaniṣad* (V.12.1) — *"ann" aur "prāṇa" — vīryaṁ.*

[19] See *Bṛhadāraṇyaka Upaniṣad* (V.12.1) — *"ann" aur "prāṇa" — vīryaṁ.*

Notes on the Sanskrit Alphabet

1. The Sanskrit alphabet reflects the symmetries of the macrocosm around us into an arrangement of *varṇas* that can virtually give rise to all microcosmic sounds in our lives. This universe as we are now understanding is non-linear, its vast energies entwine in yet mysterious ways, giving rise to islands of order and chaos as symmetries within endless symmetries.[20] In a linear, idealistic world energy lends itself to simple cause and effect solutions — I push this object and it moves forward; in a non-linear equation, this is not so. A push here may not result in an immediate effect there, the effects may collect over "space and time" zones to precipitate *entelechies*, sudden occurrences or epiphanies which seem totally disconnected. Or small effects can cause huge changes. The global weather is the first non-linear equation widely studied on the super-computers since the 1980s and the "El-Nino factor" is now legendary. A small current in the Pacific has been empirically found to control huge changes in world weather.

2. An isomorphism from external reality to discursive language is created, thus: as we speak the first vowel *a* (अ) to the last mute *m* (म) — the glottis to the labials are traced and the entire mouth is virtually "shaped" in the *varṇas*. Next, the *svaras*, or vowels are 13 in number according to the *Atharvaveda Prātiśākhya* and *Ṛgveda Prātiśākhya* (some texts talk about more, but I feel this number is correct.) — *a* (अ) is the symbol for *Brahman* as shown above. The vowels are likened to the energies of the day and the consonants to the night.[21] The (अ) if suppressed, and treated as the Unknown; the Unseen or the Undeterminable It leaves us with 12 signs. These are the numbers of months of the sun-signs. *a* (अ) is further embedded as a suffix in every mute and sibilant directly[22] and in the semi-vowels inherently — thus It constitutes every spoken word, sentence and so on. The mutes are the manifested, reflected glory of the *Brahman* and are likened to the night. They are 25 in number and so is the number of synodic moon

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[20] See *Bṛhadāraṇyaka Upaniṣad* (V.5.1) — *"satya" kā artha.*

[21]. See *Aitareya Arāṇyaka* (II.2.4) and *Ṛgveda* (VI.9.1).

[22]. See *Aitareya Arāṇyaka*, (II.3.6).

cycles[23] in a year multiplied by two — to account for the waxing and waning part of the cycle. This is one symmetry. If we treat the mutes and sibilants (and neglect the *anunāsika*) as one group then we see 12 combinations of *alpa* and *mahāprāṇa*. Pt. Motilal Shastri explains in detail how the *chanda*s are derived from the annual, apparent movement of the sun from the Tropic of Cancer to the Tropic of Capricorn (Shastri, p. 79). The immediate solar cycles are thus embedded in the spoken word.

3. The *Nirukta* derives *svara* as the *suvarṇa* or pure sounds. The (अः) sound is the *pratyāhāra* for the entire alphabet — and (ॐ) for the vowels and the mutes: that is all the *varṇa*s covering the shape of the mouth. This is further corroborated by the *cakra* system: (अः) is the *bīja* for the seventh and the highest *cakra* or the Crown — *sahasrāra cakra*; (ॐ) is the *bīja* for the next highest, the sixth or the Third-eye — *ajñā cakra*; (ह) for the fifth or the Throat — *viśuddha cakra* (Harish Johari 1987: 90-91).

   (अ) and (इ) are explained as two Infinities — *pūrṇam adaḥ* (अदः) and *pūrṇam idam* (इदम्) in the *śānti-pāṭha*. This links beautifully with Cantors' theory of Transinfinite cardinals — where the "countable infinity" is . . . . α^0 (alpha-naught); the uncountable infinity of the continuous line, e.g., is . . . . α^1 (alpha-one), and Omega that which cannot be reached (Rucker 1983: 240).

   [To my mind first as (अ) is symbolically and akin to $\sqrt{-1}$, similarly the other three primary vowels also have possible other mathematical symbolic representations. As a suggestion this could work on the lines that (इ) is the exponential e; (उ) is like π and (ऋ) is like the number system ?? There is a mathematical coding . . . but this needs to be investigated further.]

   The mutes also begin with (कं) as Prajāpatī and (खं) as *śūnya* or zero. Both are also equated to *Brahman* representing the increasing side and decreasing side of creation.

4. The Semi-Vowels are the *antaḥsthaḥ* or they reflect the inner energies. Their significance in the *cakra* system is that they comprise the *bīja* for

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[23] The sidereal cycle of the Moon is 27.32 days and the synodic cycle is 29.53 days (365.25/29.53 = 12.37 × 2 = 24.74).

the first four *cakras*, viz., (य) the 4th or the Heart — *anāhata cakra*; (र) the 3rd or the Navel — *maṇipūra cakra*; (व) the 2nd or the genitals — *svādhiṣṭhāna cakra*; (ल) the 1st or the lower Pelvic — *mūlādhāra cakra*. It would be interesting to look at these and some conjugal words, e.g., *yam* (यम) — *māyā* (माया); *viṣa* (विष) — Śiva (शिव); there is a metaphysical representation which needs further perspicacity.

5. The Sibilants, also called the Fricatives are the *ūṣma* (श), (ष), (स) and (ह). These can be linked to the three *śakti*s (शृ), (उषा), (सती) . . . the energies of the manifest universe. Their consorts are Brahmā, Viṣṇu and Śiva . . . the two different *śa* and *ṣa* . . . conjugate words. In the Vedic system energy is treated very differently from the Western scientific method.

   Śrī is the countable domain. Here the energy transactions are conserved. That is what leaves one spot diminish from there and increase at the receiving end.

   Uṣā is that which keeps getting replenished from without. It is like the continuous infinity α^1 . . . the rays of the *ādityaḥ* the sun, the flowing rivers are all examples of this form of *śakti*.

   Satī is the "energy that grows" by giving. It is like the fruits of a tree that multiply or the dispersion of knowledge or like lighting many candles with one and so on. This increase is the *bṛḥ* and is the process of going back into the non-linearity.

   There are many metaphors such as these in the scriptures.

In short, this alphabet of the Sanskrit language has a metaphysical basis,[24] a structure which needs deep analysis . . . its root forms, its metres and other structures give one the feeling of the unfolding of Dimensions. In fact, one feels, looking at the *fig.* 3 that this could well lead to the elusive *string* of the Western "string theory" of 12 to 26 dimensions!

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[24] For a detailed discussion see the author's article "The Metaphysics of the Sanskrit Alphabet," in *Sabda: Text & Interpretation in Indian Thought*, ed. S.K. Sareen and M. Paranjape, Mantra Books, 2004.

Appendix — Poetry

Brahma

Ralph Waldo Emerson

(From Louis Untermeyer "A Concise Treasury of *GREAT POEMS*").

Ralph Waldo Emerson (1803-82) — Born 25 May, 1803, in Boston, Massachusetts, of ministerial stock, he was destined for the ministry. After graduating from Harvard College and Harvard Divinity School, he was ordained in his 26th year. Three years later he left the pulpit, unable to believe in the ritual.

Emerson spoke up for the intellectual as well as religious independence; he held that humanity had lost self-rule and self-reliance, that man was dominated by things rather than by thought. As a result of Emerson's attack on the conventions, clergymen assailed his "heresies" and Harvard closed its lecture rooms to him. Thirty years later he received an honorary degree from Harvard and chosen one of its overseers. At sixty-seven he gave a course of philosophy at Cambridge.

The suavity of Emerson's verse is deceptive. The surface is so limpid, so easily persuasive, that it appears conventional. But the ideas embodied in the poems are energetic and radical; they are, like Emerson himself, not only truth-loving but truth-living. They celebrate the democratic man, but they do not idealize him; they recognize evil as well as good; they regard doubt not as fixed denial but as "a cry for faith rising from the dust of dead creeds." Even love, which demands every sacrifice, must be free from moral impositions; for "when half-gods go, the gods arrived."

The pantheistic BRAHMA has been parodied and misunderstood, although the title should make it plain that the speaker is not meant to be Emerson but the god of nature. In this poem, accident and design, life and death, are harmonized in the all-resolving paradox of existence.

If the red slayer think he slays,
Or if the slain think he is slain,
They know not the subtle ways
I keep, and pass, and turn again.

Far or forgot to me is near;

Shadow and sunlight are the same;
The vanished gods to me appear;
And one to me are shame and fame.

They reckon ill who leave me out;
When me they fly, I am the wings;
I am the doubter and the doubt,
And I the hymn the Brahmin sings.

The strong gods pine for my abode,
And pine in vain the sacred Seven;
But thou, meek lover of the good !
Find me, and turn thy back on heaven.

Louis Untermeyer

Man

A.C. Swinburne

(From Louis Untermeyer "A Concise Treasury of GREAT POEMS").

Algernon Charles Swinburne (1837-1909) has been variously described than any other poet of his century. Edmund Gosse pictured him, with his thin body, waving red hair, and birdlike head, as a brilliant but ridiculous flamingo. T. Earle Welby likened him to a pagan apparition at a Victorian tea party. The personality who, according to Edgell Rickword, "shattered the virginal reticence of Victoria's serenest years with a book of poems," was born in London 5 April, 1837. His forebears were distinguished aristocrats. Spoiled and precocious, Swinburne attended Eton and Oxford without being graduated from either. He fell in love with medievalism and its interpretation by the Pre-Raphelites. In his early twenties he attempted to outdo the excesses of the young Bohemians, and was successful, although at great cost to his physique and character.

At twenty-three Swinburne published his first volume, two poetic dramas dedicated to Rossetti. The blank verse was fluent, and the interspersed lyrics were graceful, but the critics were not impressed. Five years later there appeared his ATLANTA IN CALYDON, and the critics squandered their superlatives. In this Swinburne attempted to "reproduce for English readers the likeness of a Greek tragedy with something of its true poetic life and charm." But the exuberance was anything but Greek, and the mounting syllables carried a sumptuous and orchestral music new to English ears. The spirit was rebellious, a defiance of the creeds by which men live, but it was the melodiousness which made the young men of the period shout the choruses to each other. "MAN" the poem below was part of ATLANTA IN CALYDON:

Before the beginning of years,
There came to the making of man
Time, with a gift of tears;
Grief, with a glass that ran;
Pleasure, with pain for leaven;[25]
Summer, with flowers that fell;
Remembrance fallen from heaven;
And madness rises from hell;
Strength without hands to smite;
Love that endures for a breath;
Night, the shadow of light,
And life, the shadow of death.

And the high Gods took in hand
Fire, and the falling of tears,
And a measure of sliding sand
From under the feet of the years;
And froth and drift of the sea;
And dust of the laboring earth;
And bodies of things to be
In the houses of death and of birth;
And wrought with weeping and laughter,
And fashioned with loathing and love,
With life before and after
And death beneath and above,
For a day and night and a morrow,
That his strength might endure for a span
With travail and heavy sorrow,
The holy spirit of man.

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[25] *n.* substance used to make dough ferment and rise; tinge or admixture of.

From the winds of the north and the south
They gathered as unto strife;
They breathed upon his mouth,
They filled his body with life;
Eyesight and speech they wrought
For the veils of the soul therein,[26]
A time for labor and thought,
A time to serve and to sin;
They gave him light in his ways,
And love, and a space for delight,
And beauty and length of days,
And night, and sleep in the night.
His speech is a burning fire;
With his lips he travaileth;
In his heart is a blind desire,
In his eyes foreknowledge of death;
He weaves, and is clothed with derision;
Sows, and he shall not reap;
His life is a watch or a vision
Between a sleep and a sleep.[27]

"I" (Ämî)

Rabindranath Tagore

Man happens to be the fulcrum of Tagore's cosmic vision; it is the "The Religion of Man" that concerns him; there is, indeed, no other religion. Because man is, there is Dharma; because man is, there is Beauty and Truth — and, indeed God. There is a taped conversation between Einstein and Tagore, in 1934, where Tagore keeps insisting that Beauty and Truth are dependent on man, and argues that if man did not exist the Pallus Athene would no longer be beautiful. Einstein counters that Beauty may be dependent on man but he cannot believe that Truth is. Truth, according to him, exists independent of man; if all human beings disappeared from the face of the earth, Truth would remain. "I agree with this conception in regard to Beauty," says Einstein, "but not in regard to Truth."

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[26] The senses are the "scrim" of Radhakrishnan — See "Māyā."

[27] Compares with R. Frost's — "and miles to go before. . ."

A famous poem in *Shyamali*, "I," is built on this Tagorean interpretation of the Upaniṣadic *mantra* — *tat-tvam-asi* — "That you are" (*Chāndogya Upaniṣad*, VI.8.7). The point is that if I indeed am That, if the individual *ātman* is the cosmic *Brahman*, then the two are not, as traditional Upaniṣadic glosses assert, identical but, argues Tagore, interdependent. God needs man as man needs God. In fact, in the poem that follows, a startling twist is given to the concept of *māyā*. In Tagore's view, there are two kinds of *māyā* — the no-*māyā* that "exists" when there is no creation, no mankind, no pre-creation existences, as it were. And there is a yes-*māyā*, the world of shape and colour and music and thing, of the multiplicity of material phenomena. No-*māyā* is helpless and lost and alone and nothing, unless it expresses itself in the yes-*māyā* of the physical world. *Brahman*, alone, without the presence of man, is not the essence, the Truth, the basic reality; you might say, empty, insubstantial, vacuous. If God creates man, it is equally true that man creates God, because God's existence is proved and approved by God's creation of mankind.

This may be a meeting point of science and myth; who can say? Tagore's is not a smoky abstraction. At least one gets the impression when reading the views of John A. Wheeler, Professor at Princeton University and currently Director of the Centre for Theoretical Physics at the University of Texas, who in a seminal book *Gravitational Theory and Gravitational Collapse* gave it the name "black hole" — to a miniscule object hugely dense and "yet invisible because nothing, not even light, could escape its stupendous gravity."

"Is man an unimportant bit of dust or an important galaxy somewhere in the vastness of space ?" asks Wheeler. And his answer is no — not on the basis of religious faith but on scientific argument. "The strongest feature of Quantum Mechanics, the foundation of modern physics, is the discovery that it is impossible to measure more than one quantity (such as position or momentum) of sub-atomic particles at a time; measuring the one prevents us from measuring the other. . . . This "uncertainty principle" stood for forty years as a paradox and an apparent limit to human knowledge. "The words are John Boslough's, who also explains how Wheeler takes up this strange uncertainty principle and concludes that what we can say about the universe as a whole depends on the means we use to discover it. If to measure a particle is to decide which of its properties has a tangible reality, then a physicist is not simply an observer — but an active participant!" *Man by exploring the universe, plays a part in bringing into being something of what he sees.* This was a modification of the "anthropic principle" first advanced by physicist Robert Dicke. *The universe is the way it is because we are in it.* Wheeler pushed the idea to its limits, to a principle cutting both ways; that the concept of a universe is meaningless unless there is a community of thinkers to observe it, and that community is impossible unless the universe is adapted from the start to give rise to life and mind.

Tagore would have agreed: objective reality does not exist without subjective perception of it. Not a leaf falls without some creative grief and compassionate sacrifice involved.

(Extract from "The Concept of an Indian Literature")

The emerald became green because I willed it so
and the ruby red.
Because I raised my eyes to the sky
the sky blazed up
in the east and the west.
I looked at the rose and said "Beautiful" –
and the rose was beautiful.
"But that's philosophy," you say,
"Why don't you stick to poetry ?"
To which I'll say, "But this is the truth.
That's why it's poetry."
Of course I'm proud :
I'm speaking for man.
The World-Maker's skill
is woven on the fabric of man's I-ness.
The philosopher chants with every breath-
"No, no, no,
no emerald, no ruby, no light, no rose,
no I, no you."
But there is the Infinite One deep in sadhana
in the heart of finite man,
saying, "you and I are one."
In that oneness of you and I, darkness and light become one,
rose shape, rose rasa,

no-maya flowered into yes-maya,
in line and colour, in pain and pleasure.
Don't call this philosophy,
My heart thrills with the joy of creation
as I stand brush and colour-bowl in hand
in the hall of this cosmic-I.
The pundits say :
Look at the old man Moon
smiling his cruel and cunning smile
crawling like a messenger of Death
to the ribs of Earth.

One day he'll tug at our seas and hills.
A new account will open on the ledger of history
with a huge zero entered by Mahakala Time
erasing past debits like days and nights.
What then of pretentious immortal deeds of man?
Tidbits of history swallowed
in the black ink of oblivion.
The day man disappears
his eyes will take away all the world's colours.
The day man disappears
his heart will take away all the world's rasa.
Then Shakti vibrations alone will energise the sky,
there will be no light anywhere.
The musician's fingers will strum in a veena-less hall
a soundless raga.
A poem-less Creator will sit alone
in a blue bereft sky
lost in the coordinates of a personality-less existence.
Then
in that cosmic mansion
stretching across endless and uncountable reaches
of space upon space of splendid desolation
these syllables will be heard no more-
"You are beautiful,"
"I love you."

Will the Creator then lapse into sadhana again
for yuga upon yuga ?
On the evening of cosmic dissolution will he chant
"Speak to me ! Speak to me !"
Will he say, "Say 'You are beautiful'?"
Will he say, "Say 'I love you'?"

References

Beiser, Arthur, *Perspectives of Modern Physics*, McGraw-Hill Ltd., Kogakusha, 1969.

Borges, Jorge L., *Labyrinths*, Penguin, 1964.

Capra, Fritjof, *The Tao of Physics*, Bantam Books, 1983.

———, *The Hidden Connections*, Flamingo, Harper Collins, 2003.

Cramer, F., *Chaos and Order*, VCH Publishers, New York, 1993.

Dirac, P.A.M., *The Principles of Quantum Mechanics*, Oxford University Press, 1974.

Dunham, William, *Journey Through Genius*, Penguin Books, 1991.

Hofstadter, Douglas R., *Godel, Escher Bach*, Vintage Books Edition, 1989.

———, and C. Dennett Daniel, *The Minds I*, Bantam Books, 1981.

Johari, Harish, *Cakras*, Inner Traditions India, Vermont, USA, 1987.

Keith, Arthur Berriedale, *The Aitareya Āraṇyaka*, Eastern Book Linkers, 1995.

Malaviya, Sudhakar, *The Aitareya Brāhmaṇa*, vol. I & II, Tara Printing Works, 1996.

Maturana, Humberto R. & J. Varela Francisco, *The Tree of Knowledge*, Shambhala Publications, Inc., 1992.

Mishra, Vidhata, *Sanskrit Phonetics*, Chowkhamba Publication, 1972.

Paul, Deussen, *The Philosophy of the Upaniṣads*, Banarsi Das & Co., 1980.

———, *Sixty Upaniṣads of the Veda*, vol. I & II, Motilal Banarsidass, 1995.

Radhakirshnan, S., *The Principal Upaniṣads*, Oxford University Press, 1992.

Rucker, Rudy, *Infinity and the Mind*, Bantam Books, 1983.

Sampatkumaran, M.R., *The Gītābhāṣya of Rāmānuja*, Ananthacharya Indological Research Institute, 1985.

Sareen, S.K. & M. Paranjape, *Sabda: Text & Interpretaion in Indian Thought*, Mantra Books, Delhi, 2004.

Sarup, Lakshman, *The Nighaṇṭu and the Nirukta*, Motilal Banarsidass, 1984.

Schrödinger, Erwin, *What is Life and the Mind and Matter*, Cambridge University Press, 1992.

Shastri, Pt. Motilal, *Māṇḍukya Upaniṣad Gyānbhāṣya*, Rajasthan Patrika Ltd.

———, *Vijñānabhāṣya — Śatapatha Brāhmaṇa*, vol. III, Part 1, Rajasthan Patrika Ltd.

Subramania, Iyer K.A., *The Vakyapadiya of Bhartṛhari*, 3 vols., Motilal Banarsidass, 1974.

Swami, Chidbhavananda, *The Bhagavad Gītā*, Sri Ramakrishna Tapovanam, 1974.

Swami, Gambhirananda, *Māṇḍūkya Upaniṣad*, Advaita Ashram, Calcutta, 1990.

———, *Aitareya Upaniṣad*, Advaita Ashram, Calcutta.

Swami, Madhavananda, *The Bṛhadāraṇyaka Upaniṣad*, Advaita Ashram, Calcutta, 1993.

Swami, Sarvananda, *Aitareyopaniṣad*, Sri Ramakrishna Math, 1978.

Talbot, Michael, *Mysticism and the New Physics*, Arkana Penguin Books, 1983.

Thomas, Henry and L. Dana, *Living Biographies of Great Philosophers*, Garden City Inc. Publishing Co., 1941.

Untermeyer, Louis, *A Concise Treasury of GREAT POEMS*, Pocket Books, NY, 1973.

Vidhyamartand, Satayvrat, *Ekādaśopniṣad*, Vijayakrishana Lakhanpal, 1996.

Wilber, Ken, *The Holographic Paradigm and Other Paradoxes*, New Science Library, 1985.

Wilber, Ken, *A Theory of Everything*, Mcmillan, Gateway, 2001.

Wolf, Fred Alan, *Taking the Quantum Leap*, Harper and Row, Publishers, NY, 1989.

Wolfram, Stephen, *A New Kind of Science*, Wolfram Media, Inc., 2002.

Part III
Medical Science in India

8

Modern Medicine and Indian Wisdom

B.M. Hegde

MODERN medicine started five thousand years ago on the banks of the river Nile as magic, sorcery, witchcraft, and mumbo-jumbo. It has developed over the years into what is now called the scientific modern medicine. But even to this day modern medicine has remained essentially an art based on science.

Unfortunately, it has not been able to fulfil two of its avowed objectives. More than 80 per cent of the world population, a good 4.6 billion people, even today do not seem to have any touch with it; 57 per cent of Britons in a survey expressed their desire to avoid it, if possible; while 62 per cent of the upper middle-class Americans find it difficult to afford health insurance. The insurance premia, based on the star performers' fees, in a fee-for-service system, are prohibitively high.

Prince Charles, the heir to the British throne, was not far off the mark when he remarked some time ago: "that modern medicine, for all its breathtaking advances, is slightly off balance like the Tower of Pisa."

The desire of the young medicos, both in the UK and the USA, to acquire a working knowledge of other systems of medicine, better called complementary medicine, and the public demand for the latter, resulted in the London College of Physicians organizing a symposium on the Science of Complementary Medicine, a couple of years ago. The French Government seems to have saved lots of unnecessary expenditure on health care after they opened a one hundred bed Chinese medicine hospital in Paris.

While it is true that modern hi-tech medicine is very essential for all types of emergency care, ranging from accidents to heart attacks, chronic degenerative diseases still elude any solution. With all the so-called hi-tech, that has been aptly described as middle level technology by Lewis Thomas in his celebrated book, *The Lives of a Cell* (Thomas, 1984), we have been able to eradicate only one disease, small pox. This was possible, not through any of the hi-tech methods; but by the simple vaccination.

Ancient Indian wisdom in medicine, like in many other fields of human endeavour, comes from, the time honoured, Vedic Wisdom. The appendices of the Vedas, the *upāṅgas*, deal with all aspects of human life. The leading among them is *Āyurveda*, the science of life. This deals with the whole gamut of human health and illnesses. Although Max Müller assessed the timing of the Vedas to be around 2500-3000 years, there are unequivocal data to show that they are at least 10000-15000 years old, if not older (Laxmikantham, 1999). In one sense they have no beginning.

It is a pity that this most ancient system was the only one being ignored in the recent Royal College symposium. There are evidences to show that even some of the Chinese systems, like acupuncture and Qi gong, have emanated from the Indian Vedic wisdom, and then migrated with Buddhism to China (*Idem*). Wisdom is not confined to any race, region, time or for that matter, even individuals.

An attempt is made to show in this paper some of the milestones in medicine that show so much similarity between the ancient Indian wisdom and the modern scientific medicine. I have to, perforce, confine myself to only a few of them for the purview of this paper.

In his classic book *India in Greece*, written in 1852, E. Pococke gives detailed evidence to show how the Western civilization came to Greece from Sumeria, but came to Sumeria from India thousands of years ago. There was large-scale migration of Indian scholars to Greece along with their texts. This ancient classic, *India in Greece*, is noted by Dr. Laxmikantham, professor of mathematics at the Floria Institute of Technology, in his recent book *The Origin of Human Past* (*Idem*).

In fact, it was Albert Einstein who said: "We owe a debt of gratitude to the Indians, for they taught us how to count, without which no scientific discovery was ever possible."

The Vedic scriptures, including *Āyurveda*, have always been concerned with the whole of humanity and not just Indians. It is not a religion in the conventional sense. It has no religious organization or authority and does not deal with *saguṇa Brahman*, God with a form. Vedas proclaimed *vasudhaieva kuṭumbakam* — the whole world is but one large family.

It was the French astronomer, Bailley, who verified the claims of the ancient Indian astronomers that the most ancient of all systems compared to the Egyptians, Greeks, Romans, and even Jews was the Indian wisdom and all the others derived their conclusions from Indian sources, although most Western scholars wanted to debunk Bailley's theories. Very influential of the latter was Reverend Burgess, who in CE 1860 tried, in vain, to prove that India was not the cradle of language, mythology, arts, sciences, and religion.

The science of *Āyurveda* tries to explain how one should look after his body in terms of diet and lifestyle. It talks about medicines only in rare circumstances. It emphasizes the importance of the study of human anatomy and physiology as the basis of all further studies with the help of a dead body; carefully studying every part of the body to understand its functions. It also emphasizes the need for continuous research and study during the doctor's lifetime to keep abreast of the science.

Āyurvedic surgery, led by Suśruta, included amputations, grafting, setting fractures, removal of the foetus, removal of bladder stones, and the eternally famous rhinoplasty that he is known for even to this day. His treatise contained a total of 127 instruments; some of which look very modern, even by today's standards! Brain surgery, drug dynamics, counteracting the effects of poisonous gases and even the present-day Caesarian sections have all been graphically described.

There is now ample evidence to show that "Hippocrates borrowed his *materia medica* from Āyurvedic sources" (Laxmikantham & Kutumbiah, 1962). The Chinese system of acupuncture, which describes the point locations on the body, the *marmas*, has been described in detail in *Āyurveda* much earlier. A recent publication from the former USSR Library of the Academy of Sciences, Leningrad, shows how the art of acupuncture originated in India and moved to China. A Chinese Sanskrit scholar, Itszin, who visited India in AD 673 to study at the University of Nalanda wrote: The inhabitants of India are imparting proper medical knowledge to the Chinese people in the complete art of treatment by pricking, cauterization and also the study of the pulse." All these show how ancient is the Indian system of medicine.

In modern medicine there are increasing appeals for a unified holistic approach to integrate the somatic and the psychological features of the patient with his or her medical disorder. However, we still frequently find a disturbing polarization of natural-science-oriented *vs* psycho social science-oriented medicine. This division has its roots in the traditional Cartesian division of *res cogitans* (thinking substance) and *res extensa* (extended or corporeal substance) the dualism of subject and object; mind and body. The psychosomatic problems have received much medical attention in the recent times especially in the neuro-sciences. This distinction does not exist in *Āyurveda*.

If only modern medicine could incorporate the knowledge of modern quantum physics more effectively, we could achieve a quantum jump in our effort to overcome the polarization and conflicts caused by dualistic thinking. Usual thinking in medicine up until now has been based predominantly on the natural sciences of the classical rather than of modern physics based mainly on the quantum theory.

If analysis of the human body continues beyond the level of cells, molecules, and atoms to the level of sub-atomic structures or elementary particles the old concept no longer holds good. Modern physics assumed that elementary particles can no longer be understood as corporeal structures in the sense of the Cartesian *res extensa* and *res cogitans* and could only be described without contradictions as mathematical structures. The physicist Heisenberg even referred to these mathematical structures as being closely related to Plato's forms. Thus, in modern natural sciences the Cartesian concept of *res extensa* and *res cogitans* can no longer be consistently maintained.

Medicine must respond to the developments in its natural scientific base in reshaping its own position with regard to them. The traditional strict division between psyche and *soma* must be overcome and the unified holistic approach to the patient should be encouraged.

The history of medical thought in the West has been a succession of errors in the ascending road of progress. Primitive medical concepts and practices began with the first man on earth and have not entirely disappeared today. 99 per cent of man's time on earth in excess of one million years ended at about 8000 BC and has been called a Paleolithic period. Surgery of the primitive people had an astonishing degree of technical efficiency. The most ancient instruments were but sharpened stones. Trepanning of the skull was carried out among Neolithic people to remove splinters and fragments of fractured skull, for magical purposes to relieve the evil spirits, etc. Thus mystic faith and empiric experience based upon seeing and believing were the first attitude adopted by the primitive physician.

We shall now look at some milestones in the medical world.

Vaccination Against Small Pox

Lewis Thomas, former President of the Sloane Kettering Cancer Institute, claims that the highest technology in medicine is the complete understanding of any disease to be able to eradicate it. Although vaccination has not been very hi-tech by the present standards, small pox is the only disease that we have been able to eradicate to this day. He credits vaccination to be the highest technology in medicine (Thomas, 1984).

Edward Jenner gets all the credit for discovering vaccination. An audit today would show him in very bad light. By any stretch of imagination what he did then would never have passed the ethical committe norms of today.

One of the Fellows of the Royal College of Physicians of London, J.Z. Holwell, FRS did study the wisdom of India in the eighteenth century by going there and remaining there for some years along with twenty other Fellows of the Royal Society. The Royal Society had sent some of its Fellows to study the science and technological developments in India in the distant past. All those reports of the Fellows have been brought out recently in a book form by the Academy of Gandhian Studies in Hyderabad. Prof. Dharmapal in this book *Indian Science and Technology in the Eighteenth Century* has given a graphic description of the vaccination methods then prevalent, as noted by J.Z. Holwell quoting from Holwell's original lecture in 1767 to the President and Fellows of the Royal College of Physicians of London (Inge, 1921: 28).

"The art of medicine has, in several instances, been greatly indebted to accident; and that some of its most valuable improvements have been received from the hands of ignorance and barbarism; a truth, remarkably exemplified in the practice of inoculation of the small pox," was the opinion of the College at that time. But Holwell studied the system for nearly twenty years, using the "most scientific" prospective cohort study design, to come up with the following opinion that he placed before the august body of the college for their consideration:

> However justified you gentlemens' remarks may be, you will be surprised to find, that nearly the same salutary method, now so happily pursued in England, (howsoever it has been seemingly blundered upon) has the sanction of remotest antiquity (in India), illustrating the propriety of present practice.

Every year before the epidemic of small pox starts in early summer, a group of vaccinators, that tribe of brāhmaṇas who are delegated every year from the different colleges of Bindoobund, Eleabas, Benares, etc., arrive all over the provinces, dividing themselves into smaller batches, arriving in their places well before the onset of the epidemic. The local people, anticipating the arrival of this team, observe strict regimen enjoined if they want to be inoculated. The brāhmaṇas pass from house to house and ask if the inmates have observed the regimen enjoined and then start their work only on those that want to be inoculated. There is no compulsion; in fact, even the number of points they want to be inoculated depends on the recipient's choice.

Outside of the arm is preferred. First the operator takes a piece of fresh cloth, which becomes his perquisite if the patient is affluent, and cleans the arm area to be inoculated. It is dry massage for a good ten minutes. Then with a special lancet, which is much better than the one used in England, scratches the arm area thus cleaned without drawing blood. The chief of the team keeps a double rag linen bag in his waistband in which previous year's pus from the inoculated pustule (never from a patient suffering from the disease) is preserved. This is then smeared on to the scratch and bandaged with clean cloth to be kept for a couple of days. Before closing the wound a few drops of Ganges water are poured over the wound thus made. Throughout this procedure continuous chanting of the *mantra* of worship for the female deity in charge of this disease goes on.

The pus used is from the inoculated pustule of the previous year, for they never inoculate fresh material, nor with matter from disease caught in the natural way, however distinct and mild the type might be. This is the best way of attenuating live virus. Following the inoculation the person would have to observe strict regimen of diet and treatment for the mild eruptive fever that follows. Holwell wrote:

> Although I was prejudiced in the beginning and many practitioners modified the technique, based on their teaching back home, my follow up studies showed that the altered methods lost many patients and the Brahmins' methods did not lose any patient.

Follow up showed that almost 90 per cent of those inoculated escaped while 90 per cent of the uninoculated died during the following epidemic! Holwell has given detailed reasons why certain food items like milk and fish were prohibited and showed that it was based on very sound scientific reasoning.

The inoculated person got a very mild eruptive fever, which invariably settled down with another treatment regimen to be followed very strictly and the inoculated person thus became immune to the natural and almost fatal disease! Holwell quoted two of his predecessors who commended this practice as very accurate with invariable success and venerable antiquity for its sanction. They were Helvetius and Kirkpatrick (Milan, 1870:72-77).

Heart and Its Diseases

The following stanza in the *Suśruta Saṁhitā*, the most important text book in *Āyurveda*, clearly describes the pain of myocardial ischaemia (anginal pain) in such great detail that it cannot be bettered even now. The interesting aspect of the treatise is the reference to the cause of pain in the beginning of the stanza, viz.: *hṛdrogam* (heart disease).

Although once called the English disease, angina has its first well-documented authentic description in *Āyurveda.*

> Tricatvāriṁśatammodhyāyaḥ
> *"athāto hṛdrogapratiṣedam vyakyasvamyaḥ*
> *yathovāca bhagavān dhanvantarim (sutruthaya).*
> *ayammyathe mārutaje hṛdayam thudyate,*
> *nirmatyate dhīryate ca spoṭyate pātica*
> *triṣṇośaḍāhacoṣām syuhu paitikeca,*
> *dhūmāyanam ca mūrchā ca svedahako."*

> In this chapter Bhagavān Dhanvantari, the God of healing, personally describes the symptoms of heart disease and impending death due to heart attack. Patient may feel pricking pain, vibrations (palpitations), burning pain, at times the pain may be very severe resembling the pain of splitting the chest into two halves with an axe! He may have unusual thirst, burning all over, breathlessness, extreme exhaustion, mouth breathing because he cannot have enough breath through his nostrils, profuse sweating, pale face, stiffness of the body parts, and, finally, even unconsciousness may result!

Heberden, an English physician, credited with the first authentic documentation of angina pectoris in the eighteenth century, gave a graphic description of his own chest pain, but had no idea that the pain came from the heart. His student, Edward Jenner, of vaccination fame, thought that his boss's chest pain was due to syphilis. It was only around AD 1905 that William Osler, a great medical brain of the last century, postulated that the chest pain that Heberden had could have been due to heart disease.

Reference has already been made about the accurate anatomical knowledge in *Āyurveda*. In the Kannaḍa *Daśasūktāni*, there comes the

Nārāyaṇsūktāni mantra. These are derived from the *Yajurveda* originally. The *mantras* numbers 7-10, deal mainly with the physiology in the *Nāḍīgranthas*.

> Heart is said to reside in the chest between the neck and the navel, twelve finger-breadths above the navel. Although centrally situated it points slightly to the left of the midline. It is said to resemble a large lotus bud kept upside down with its tip to the left. A large vessel, in addition to many vessels in that region, arises from the heart and takes blood (God's power) to all parts of the body from head to the tip of the toe keeping the whole body warm. The diameter of this large vessel is smaller than the inner diameter of the cavity of the heart!

In the physiology section we are told that the heart contracts and relaxes on its own, actively pushing and receiving blood at the same time repeatedly without any break. "Even the receiving of blood is an active process according to this document," (*Nārāyaṇasūktāni* in *Daśasūktāni*). Frank Starling did think that it was only possible for God to understand the complete working of the heart. He, therefore, could only partly comprehend the systolic function of the heart in formulating what we now call the Starling's laws.

It is only recently that a New York based venous surgeon of Indian origin, Dr. Dinker Rai, stumbled on the possible diastolic suction of the atria, while working on a dog which died in the middle of his experiment. Analysis of his venograms in retrospect, in the cine films, showed the dye jumping into the heart from the inferior vena cava, coinciding with the atrial diastole. He would be soon writing this up. (*An Extract from Personal communication*)

Thousands of years ago *Āyurveda* knew this truth!

Mind and Disease

The role of the human mind in disease is a recent thought in modern medicine. The earliest document in this field is that of William Harvey (AD 1648) which goes thus:

> I was acquainted with another strong man, who having received an injury and affront from one more powerful than himself, and upon whom he could not have his revenge, was so overcome with hatred and spite and passion, which he yet communicated to no one, that at last he fell into a strange distemper, suffering from extreme oppression and pain of the heart and breast and in the course of a few years died. His friends thought him poisoned by some maleficent influence, or possessed with an evil spirit. . . . In the the dead body I found the heart and aorta so much gorged and distended with blood,

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> that the cavities of the ventricles equaled those of a bullock's heart in size. Such is the force of the blood pent up, and such are the effects of its impulse. . . . We also observe the signal influence of the affections of the mind when a timid person is arrested, a deadly pallor overspreads the surface, the limbs stiffen, the ears sing, the eyes are dazzled or blinded, and, as it were, convulsed. But here I come upon a field where I might roam freely and give myself up to speculation. And, indeed, such a flood of light and truth breaks in upon me here; occasion offers of explaining so many problems, of resolving so many doubts, of discovering the causes of so many problems, so many slighter and more serious diseases, and of suggesting remedies for their cure, that the subject seems almost to demand a separate treatise. . . .
>
> . . . And what indeed is more deserving of attention than the fact that in almost every affection, appetite, hope or fear, our body suffers, the countenance changes, and the blood appears to course hither and thither. In anger the eyes are fiery and pupils contracted; in modesty the cheeks are suffused with blushes; in fear, and under a sense of infamy and of shame, the face is pale, but the ears burn as if for the evil they heard or were to hear; in lust how quickly is the member distended with blood and erected.
>
> — Cited by Inglis, 1965: 179-80

Many studies in the recent past have demonstrated the pivotal role played by negative emotions like anger, jealousy, pride and depression in the causation of major degenerative diseases (Whiteman, *et al.*, 1997: 379-80):

> *krodha śoka bhaya āyāsa virudhanna bhojana taponnalan* ।
> *kaṭvāmla lavaṇa tīkṣṇonati rakta pitta prakopayet* ॥
>
> Anger, sorrow, fear, exhaustion, wrong type of food, sedentary living, acidic diet, salt, too much of condiments in diet, will eventually lead on to all the disturbances in every system of the body.

After the Second World War the stockpiling of the nuclear weapons has been going on at a breathtaking speed. That apart there have been crises everywhere which could be gauged from the daily newspaper reports of unrest in every sphere of human activity, viz., unemploymnet, energy crisis, health care crisis, atmospheric pollution, change in the biosphere, alteration in global temperature with global warming, violence and crime on an unprecendented scale all over the world with special emphasis on terrorism, political unrest in many countries, some countries trying to come together while others breaking up, man killing man in the name of religion, caste and creed, and man trying to destroy all the God-given resources of this world for his greed.

I am afraid, I must confess that this change in this century might be due to the so-called scientific temper of the mechanistic concept of Descartes and Newton of reductionism. In the name of science this world also is being split into bits and pieces. Max Bohm, the great *guru* of German physics, had warned us about the ominous significance of our pursuing the reductionist science as an end in itself. While his three Nobel Laureate students, Oppenheimer (American), Fermi (Italian), and Neils Bohr (Scandinavian), were trying to split the atom in the thirties he did warn us: "I am very proud of my pupils' cleverness, how I wish they had used their wisdom in place of cleverness." He went on to add "that little atom mankind intends to split will teach mankind a lesson one day."

Fritjof Capra, a noted American physicist in his book *The Turning Point* says it beautifully:

> The new concepts in physics have brought about a profound change in our world-view; from mechanistic conception of Descartes and Newton to a holistic and ecological view, a view which I have found to be similar to the views of mystic and sages of all ages and traditions. . . . The exploration of the atomic and subatomic world brought them (physicists) in contact with a strange and unexpected reality that seemed to defy any coherent description. N . . . scientists became painfully aware that their basic concepts, their language, and their whole way of thinking were inadequate to describe atomic phenomena. . . . It took them a long time, but in the end they were rewarded with deep insights into the nature of matter and its relation to the human mind.
>
> — Hegde, 1986: 14-18

The emphasis of the effect of the mind on the body is so great in *Āyurveda* that one finds a pivotal role for the mind in the causation of all diseases:

> *prasanna ātmā indriya manaha svastha ityābhidīyate.*
>
> Happiness of the soul, senses, and the mind would ensure good health for all times.

Human consciousness is the foundation on which rests the super-structure of the human body and its ramifications. *Āyurveda* correctly identifies mind as a quantum concept at the subatomic level, which pervades the whole organism. The latest concept of teleportation gives credence to this view. Management of diseases in *Āyurveda* should, per force, take the patient's mental state into consideration first. *Āyurveda* is a holistic science.

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The science of Yoga in Indian wisdom does just that *citta vṛtti nirodhaha yogaha* — if one could control the undulation in the mind he will lead a healthy life. The latest truth in modern medicine is seen here having been proclaimed thousands of years ago. There is a common saying that if you could keep a child's heart as you grow old you would live long. This has been shown elegantly in the breathing exercises of *yoga* (*prāṇāyāma*) where the heart rate variability (HRV) with breathing is being controlled. The sinus arrhythmia of an infant comes back alive even in old age when one could practice this breathing technique. A very recent study published in *The Lancet* shows the great physiological advantages of this method even in severely ill patients with heart failure (Stuart, 1997: 64-74).

Future Predictions in Medicine

Having practised medicine for nearly four decades I have come to believe that the reductionist science in medicine has come to naught. We have been barking up the wrong tree trying to predict the unpredictable future of the human organism. Professor Firth, a professor of physics in the Strathclyde University in Glasglow, in an article in the 1991 Christmas issue of the *British Medical Journal* had elegantly shown how the linear mathematics used in medicine and the reductionist logic of splitting the body into organs has resulted in wrong conclusions. He rightly captioned his article *Predicting the Unpredictable* (Firth, 1991: 1565-68). He advocated the use of the new holistic view to the human body and its ills, using the new of non-linear mathematics and the new science of CHAOS which look at the whole (Hegde, 1993).

It is the greed of the present-day "scientific" man to be successful in competition that has put the world in this situation of confusion and turmoil. Man is born with only two instincts: that of self-preservation and procreation. All the other emotions like hatred, jealousy, anger, pride are injected after birth by the environmental influences, the most important being the early schooling where the innocent child is taught all these ills of the modern-day society of "dog eat dog" philosophy. Socrates was right when he said, "Let not my schooling come in the way of my education." Today's education does just that. We again seem to have forgotten that dictum of John Adams who said in 1644 "education is that process which makes man to act"justly, skillfully, and magnanimously under all circumstances of war and peace.

In today's world justice gets subordinated to power — money power or muscle power, and sometimes, even to the scientific power of the atom bomb. Magnanimity is the thing of the past. The wisdom of yore in the East as also in West proclaimed to the world that the best way to live happily is to live with these three qualities engrained within us. Justice, beauty, and equality are always there within us. If they could be brought to the surface this world would be a happier and healthier place to live in.

Indian Āyurvedic Oath vis-a-vis the Hippocratic Oath

The Indian ethics of the medical profession are, if anything, much more elaborate that the Hippocratic oath itself. The following is the oath of the Indian physician:

- You must be chaste and abstemious, speak the truth, not eat meat.
- Care for the good of all living beings; devote yourself to the healing of the sick even if your life were lost by your work.
- Do the sick no harm; not even in thought seek another's wife or goods.
- Be simply clothed; drink no intoxicant; speak clearly, gently, truly and properly.
- Always seek to grow in knowledge.
- Do not treat women except when their men be present; never take a gift from a woman without her husband's knowledge.
- When a physician enters any house he must pay attention to all the rules of behaviour in dress, deportment and attitude.
- Once with the patient he must in word and deed attend to nothing other than what concerns the patient.
- What happens in the house should never be discussed outside; nor must he speak of possible death to his patient, if that might hurt him or anyone else.

In the face of gods and man you can take upon yourself these vows; may all the gods aid you if you abide thereby; otherwise may all the gods and the sacra, before which we stand, be against you.

And the pupil should consent to this.

Research in Medicine

There is a world of difference in the research methodologies of the ancient Indian system and those of modern medicine, especially the epidemiological research. Research in *Āyurveda* has been of the prospective cohort study variety where the follow up observations have gone on for hundreds of years. Modern epidemiological studies mostly follow the short-term case control methods that have many built-in flaws. The latter, therefore, result in frequent changes in our ideas and advice to patients. One or two examples would be sufficient.

Years ago it was thought that the main fault in diabetes mellitus was the leakage of sugar and patients were, therefore, advised to take large quantities of sugar. One could only imagine the damage that advice would have done. On realizing the mistake it was argued that instead of sugar they should take large amounts of fat to compensate for the lack of carbohydrates. This again must have resulted in many atherosclerotic deaths. Time was when high protein diet needed to be tempered to the needs of the patient, was the rule. Underweight diabetics eat more calories while the overweight ones cut on their calories. The latter has been the advice in *Āyurveda* for thousands of years.

Our ideas about the diet for atherosclerotic diseases have ranged from no fat to low fat. All kinds of absurd ideas were popular in the field from time to time. While butter was a taboo a few years ago, the slogan later on was butter is better. Saturated fat to polyunsaturated fat was advice till recently but now reports are trickling in about the ravages of mainly polyunsaturated fats. *Āyurveda* had one advice, which seems the most sensible even today.

> *ghṛtam tejasvinam, pittānila haram, rasasaujasam.*
>
> *Ghī* gives you good health, counteracts the bad effects of *pitta* and *anila*, promotes well-being.

Indian melted (clarified) butter (*ghī*) is supposed to be the best fat in diet, although in moderation. Scientifically, *ghī* is butter minus animal protein. It is mainly caprionic and butyric acids — the most useful and safe fatty acids. Similarly coconut oil (fresh) as the best cooking medium was advised. Although it contains saturated fats it is mainly medium and short chain fatty acids, again good anti-atherosclerotic fats. It says that cooking oils must be fresh. This is the best advice in that preserved oils and solidified oils get transformed into trans-fatty acids; the most dangerous ones for the blood vessels!

Lifestyle Changes and Health

Indian system maintains that the change of lifestyle is the best insurance against precocious diseases. The advice given is for all times:

> *nitya hita mita āhāra sevi, samīkṣakārī,*
> *datha samaha satyāpara, kṣyamavān,*

viṣaye vasākltaha, āptopasevi,
bhavet ārogyam.

> Daily eat food in moderation but that which pleases you, work very hard, do not tells lies, cheat others, or backbite people, have the courage to forgive others, always post-judge issues, and treat everyone as your near and dear ones — you will always enjoy good health.

This would look very modern by the present standards, but has not changed in thousand years. Modern medicine does not stress on these very much and has been changing its advice on and off, although there had been a textbook of medicine written by Charles Scharschmidst way back in 1734 in Vienna where he was the professor of medicine at a very young age of twenty-six, wherein he emphasized the need to change the mode of living to be healthy (Hegde, 1996: 167-68).

Modern Pharmacokinetics

While the reductionist science follows the dictum of splitting the organs into their cells and then studying their functions to study the drug effects on them, *Āyurveda* has been studying the effect of drugs on the whole system along with the environment.

Recent work seems to agree with Āyurvedic thoughts. A large study in Canada of the effects of antioxidant vitamins versus extra intake of fruits and vegetables in a large cohort of postmenopausal women showed a marked benefit in the latter group. In its editorial the *British Medical Journal* went on to say that there could be many other antioxidant factors in the whole fruits and vegetables, in addition to the known A, C and E vitamins in the tablets (Fruits and Vegetables *British Medical Journal* study of *Garlic* BMJ Study).

Similarly an editorial in the *BMJ* entitled *Garlic is good for cooking but not for health* did take into consideration the fact that all the forty odd studies referred to there used garlic extract pearls or tablets and not fresh garlic as a whole. Garlic, to be effective, has to be chewed in the mouth raw, where salivary enzymes convert the inactive principles into active ones, before swallowing. In the pills and pearls the SH group, the heart of the antioxidant property of garlic as also its anti-platelet property, is removed to mask the smell. Garlic is supposed to be a very important medicinal tool in *Āyurveda*. Recent studies in Harvard reconfirmed the Āyurvedic truth that raw ginger along with garlic and pepper have the most potent antiviral antibiotics against Flu and other respiratory viruses!

One could go on and on but I hope I have made my point. *Āyurveda* is very authentic (Kutumbiah, 1960: 9-18). It has had thousands of years of longitudinal observational prospective research to back its claims. We could further elucidate its different claims with the modern methods of inquiry, to separate the wheat from the chaff. It is very modern in that it has been using non-linear mathematics from the beginning. Modern medicine is just realizing the futility of linear mathematics in dynamic systems and is groping in the dark trying to use the non-linear mathematics. David Eddy, a former professor of cardiac surgery at the Stanford Universtiy, who now teaches mathematics at the Duke University, is trying to educate medical researchers in the correct methods of research.

Long live human kind using the help of the best in all the systems of medicine.

References

Firth, W.J., "Chaos — Predicting the Unpredictable," *BMJ*, 1991; 303:1565-1568.

Hegde, B.M., "Chaos in Medicine," *Jr. Assoc. Physi.*, India, 1996; 44:167-68.

Hegde, B.M., *Hypertension-Assorted Topics*, Bombay: Bhavan, 1993.

———, "Mind and Diseases," Madras, *VHS Bulletin*, 1986: XV, pp. 14-18.

Inge, W.R., *Religion in Legacy of Greece*, Oxford: Clarendon Press, 1921, p.

Inglis, B., *A History of Medicine*, Cleveland: The World Publishing Company.28.

Kutumbiah, P., "Air, Water, and Places of Charaka Samhita," *Ind. Jr. Hist. Med*: 1960; 5:9-18.

Kutumbiah, P., *Ancient Indian Medicine*, Bombay: Orient Longman, 1962.

Laxmikanthan, V., *Origin of the Human Past*, Bombay: Bharatiya Vidya Bhavan, 1999.

Lewis, Thomas, *The Lives of a Cell*, New York: Bantam New Age Books, 1984.

Milan, R.M., Practice of Inoculation in the Benders Division. Report of the Superintendent General of Vaccination to Government of NWP; dated 6th June 1870, pp. 72-77.

Smith, R., "Where is the Wisdom?" *BMJ*, 1991; 303:6806:798-99.

Stuart, E., "Consciousness: A New Meaning," *Proc. Roy. Coll. Phy. Edinb.*; 27:68-74, 1997.

Whiteman, M.C., Fowkes FGR, Deary I.J., *Hostility and the Heart*, BMJ, 1997, p. 315, 379-80.

9

Āyurveda as a Knowledge System

P. Ram Manohar

Changing Perceptions on the Nature of Āyurveda

DURING colonial rule in India, circumstances became unfavourable for the growth and development of indigenous medicine. At the same time, scientific medicine made a tiumphant entry into the arena of health care. This paved the way for relegation of ancient health care practices like *Āyurveda* to the status of proto-scientific or pre-scientific medicine. And it looked as though such traditions would ultimately be assigned a legitimate place to rest in the annals of human history in due course of time.

The persistence of such practices in the socio-cultural milieu of the developing countries, however, led to the rediscovery of useful elements in these traditions that were based on empiricism and worked in real life situations.[1] And their resurgence in the technology-intensive health care set-up of the developed countries has nurtured an attitude of openness to integrate "tested" practices into mainstream medicine.[2] Bodies of international acclaim like the World Health Organization (WHO) and the National Institutes of Health (NIH) have taken steps to evaluate it scientifically.[3]

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[1] Identification of the medicinal uses of herbs like *Rauwolfia serpentina* (anti-hypertensive) and *Artemesia annua* (anti-malarial), the utility of techniques like acupuncture and *yoga* illustrate the process of rediscovering some of the treasures preserved in indigenous medicine (WHO, 2002, p. 22).

[2] It has been reported that in countries like the US, visits to practitioners of Complementary and Alternative Medicine (CAM) exceeds the number of visits to MDs. People are paying out of their pockets to avail the services of the CAM practitioners (NIH, 2000, p. 8).

[3] The WHO Traditional Medicine Strategy 2002-07 and the NCCAM Five-Year Strategic Plan 2001-05 elaborate the plans of these international bodies to scientifically evaluate TM/CAM.

Āyurveda has been variously looked at as a collection of herbal recipes, primary health care and an alternative system of medicine, notwithstanding the fact that a minority of enthusiasts swear upon the holistic nature and spiritual approach of this tradition.

Attempts to understand *Āyurveda*, it seems, have been limited by an overemphasis on external frameworks of reference, so much so that the traditional viewpoint has been eclipsed and neglected. Therefore a fresh enquiry into the nature of *Āyurveda* is very much called for at this crucial juncture when it is getting all set to become a global phenomenon. Classically, *Āyurveda* has sought to define itself as a knowledge system and not merely as a health care approach or medical system. This paper is an attempt to critically examine the position assigned to *Āyurveda* by tradition and in the process to also highlight its strengths and weaknesses as a knowledge system.

In the country of its origin, *Āyurveda* is a recognized subject for formal study in the universities today. Unlike astrology, *Āyurveda* has not been dismissed as a pseudo science but it is important to bear in mind the fact that it has not been accepted as a true science also. An investigation into the epistemological foundations of *Āyurveda* might hold the key to unravel the salient features of Indian Knowledge Systems because *Āyurveda* is a living tradition and perhaps the most vibrant of the Indian traditions of knowledge.

Āyurveda as a Knowledge System

The term *Āyurveda* is composed of two words — *āyu* and *veda*. *Āyu* denotes the subject-matter and *veda*, the knowledge of the subject. To unravel the nature of *Āyurveda* as a knowledge system, the meaning of the word *veda* has to be deciphered. *Āyurveda* is defined as the knowledge that helps one to understand and preserve life.[4] The emphasis is on understanding the life process, which will facilitate its preservation.

Āyurveda was traditionally valued not merely because it deals with the important topic of life, health, disease and death, which is what the word *āyu* means. Indeed, *āyu* denotes life in totality. The intrinsic value of *Āyurveda* lies in the unique method it adopts to gather knowledge on the important subject-matter that it deals with.

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[4] *Bhāvaprakāśa* (*pūrvakhaṇḍa*, verse 4), a work on *Āyurveda* composed in the sixteenth century CE defines *Āyurveda* as the understanding that preserves life — *anena puruṣo yasmādāyurvindati vetti ca tasmāt munivaraireṣa āyurveda iti smṛtaḥ*.

The classical literature of *Āyurveda* gives one the impression of the word *veda* being used in a profound sense, not being restricted to denote the body of writings known popularly as the four Vedas.

Caraka-Saṁhitā, the celebrated work on general medicine in *Āyurveda*, explicitly states that any proposition that is in tune with the spirit of the *veda*, put forth by serious investigators, approved by the learned and of benefit to humanity can be accepted as Veda.[5] This statement makes it very clear that Veda represents an approach to knowledge building. As if to emphasize the nature of *Āyurveda* as a knowledge system, the classical teachings often omit the word *āyu* and refer to *Āyurveda* simply as Veda. This is evident in the names of certain chapters and certain key verses dealing with epistemology. For instance, the first chapter of the *Suśruta-Saṁhitā*, the oldest treatise on the school of surgery in *Āyurveda*, is called as *vedotpatti* (meaning origin of Veda, i.e., *Āyurveda*).[6] The *Caraka-Saṁhitā* replaces the term *Āyurveda* with Veda on several occasions.[7]

A grammatical analysis of the word *veda* yields interesting insights. The word *veda* is derived from at least four roots in Sanskrit, which means reality, concept building, analysis and experience.[8] Weaving these meanings together, one gets the striking impression that Veda implies the ability of the human mind to encounter reality, conceptualize, analyse and internalize the content of experiences. The start and end points of knowledge building in Veda is experience.

The four Vedas epitomize the harmonization of the powers of desire, knowledge and action. *Ṛgveda* (from *ṛc stutau* meaning to praise) represents the will power that has become charged by divine inspiration, *Yajurveda* (from *yaj dāne devatārcane*) represents the power of knowledge and *Sāmaveda* (from

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[5] *Caraka-Saṁhitā*, 1.11.27 gives a broad and inclusive definition of Veda — *tatrāpta-āgamastāvadvedaḥ, yaścānyo* । *api kaścidvedārthādaviparītaḥ parīkṣakaiḥ praṇītaḥ śiṣṭānumato lokānugrahapravṛttaḥ śāstravādaḥ, sa cāptāgamaḥ* ॥

[6] The first chapter of the *Suśruta-Saṁhitā* is named as *vedotpatti* — *athāto vedotpattimadhyāyaṁ vyākhyāsyāmaḥ*, Dalhaṇa comments that the word *āyu* is missing and that here *veda* indicates *Āyurveda* itself.

[7] *Caraka-Saṁhitā*, 1.1.47,48 substitutes the word *Āyurveda* with Veda — *sapumāṁścetanaṁ tacca taccādhikaraṇaṁ smṛtaṁ; vedasyāsya tadarthaṁ hi vedo/ayaṁ saṁprakāśitaḥ.*

[8] The word *veda* is derived grammatically from four roots: *vid* (*sattā*) meaning existence, *vetti* (*jñāna*) meaning to know, *vinte* (*vicāraṇā*) meaning to analyse and *vindate, vindati* (*prāptau*) meaning to experience or internalize — *sattāyām vidyate vetti jñāne vinte vicāraṇe, vindate vindati prāptau rūpabhedāḥ vide amiḥ.*

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samīkaroti iti sāma) represents the equalizing vision of true knowledge. When these powers are fully harnessed, one is able to encounter and learn from experiences in the most effective way. The Vedic way of life represents a gradual evolution from a state of ignorance in which humans act under the compulsion of desires to a state in which they become capable of taking informed decisions on the basis of accumulated knowledge. *Atharva* (from *na tharvati* meaning fixed or unmoving) Veda represents the corrective measures taken to unify the powers of desire, knowledge and action when they go out of balance.

In *Āyurveda* these powers are known as *smṛti* (the memory of previous experiences which creates desires), *dhī* (the intellect that generates knowledge) and *dhṛti* (the ability to act with control). The awakened state of the mind in which these faculties function with harmony is called as *prajñā*. *Prajñā* enables one to achieve perfect harmony with the universe and achieve the highest level of health. Treatment for the body (*laukikī*) produces temporary results and treatment for the mind leads to a permanent solution (*naiṣṭhikī*) when *prajñā* is awakened.

Āyurveda is a knowledge system that facilitates self-transformation and awakening of the concsiousness.

Experience — The Foundation of Knowledge

Experience, then is the fountain-spring of all knowledge. Experience can yield wisdom only if one goes into its depths. Otherwise, it does not generate knowledge.

Āyurveda fully endorses the Nyāya-Vaiśeṣika approach in this regard and differentiates between valid and invalid experience known in Sanskrit as *yathārtha* and *ayathārtha anubhava* or *pramā* and *apramā*.[9] *Pramā* means an experience that has been properly measured and *apramā* means an experience that has not been measured or evaluated properly.

The crux of the matter is that while Veda is experiential, all experience is not Veda. An encounter with reality creates experience but not necessarily knowledge. To transform experience into knowledge, training is required; certain techniques have to be applied.

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[9] *Caraka-Saṁhitā*, 1.11.17 states that the world of experiences can be categorized into what exists (*sat*) and what does not exist (*asat*). This corresponds to the *yathārtha* and *ayathārtha anubhava* of the *darśanas* (the six classical knowledge systems of India) — *dvividhameva khalu sarvaṁ saccāsacca*.

The tools of knowledge are called in Sanskrit as *pramāṇas*, literally instruments of measurement. The coalescence of the knower, the tools of knowledge and the objects of knowledge transforms experience into wisdom, Veda.

There is no scope for speculation as a source of knowledge in this scheme. *Tarka* or speculation is not accepted as a valid means of knowledge (*pramāṇa*) although it has been assigned a subservient role in the knowledge building enterprise.[10] As a knowledge system, *Āyurveda* is experiential to the core. A few quotations from the classical texts are illustrative in this regard.

That oil pacifies *vāta*, *ghī* pacifies *pitta* and honey pacifies *kapha* is a matter of direct observation and experience. It makes no difference if this statement is made by Brahmā or his son, states Vāgbhaṭa in his work *Aṣṭāṅga-hṛdayam*.[11]

No matter what arguments one puts forth and what theories one conjures up, the *ambaṣṭhādi* formulation can never exhibit purgative activity, remarks Suśruta, pointing out the futility of theorizing without the support of experience.[12]

In another context, Cakrapāṇidatta refutes the theory that plasma (*rasa dhātu*) is completely transformed into blood (*rakta dhātu*), which in turn is converted entirely to flesh (*māṁsa dhātu*) and so on. He points out that if this were the case, a person who fasts for two or three days would become devoid of plasma. This is contrary to experience. So the theory of complete transformation of tissues is not acceptable.[13]

Transforming Experiences in Non-ordinary and Ordinary Modes of Consciousness

In line with the thought of the orthodox knowledge systems of India, *Āyurveda* postulates that there are basically two methods to transform experience into knowledge. One method is based on nurturing the intuitive faculty and the other on harnessing the rational faculty of the human mind.

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[10] The *Tarka Saṁgraha*, *avaśiṣṭaparicchedaḥ*, which is an introduction to Indian epistemology includes *tarka* under invalid experience, i.e., *ayathārtha anubhava — ayathārthānubhavastrividhaḥ saṁśayaviparyayatarkabhedāt.*

[11] *Aṣṭāṅgahṛdayam*, 6.40.86 — *vāte pitte śleṣmaśāntau ca pathyaṁ tailaṁ sarpir mākṣikaṁ ca krameṇa, etad brahmā bhāṣatāṁ brahmājo vā kā nirmantre vaktṛbhedoktiśaktiḥ.*

[12] *Suśruta-Saṁhitā*, 1.40.21 — *sahasreṇāpi hetūnāṁ nāmbaṣṭhādirvirecayet, tasmāttiṣṭhettu matimānāgame na tu hetuṣu.*

[13] See Cakrapāṇidatta's commentary on *Caraka-Saṁhitā*, 1.27.3.

Nurturing the intuitive faculty means much more than the occasional flashes of insights that create the ground for exciting discoveries even in the scientific enterprise. In *Āyurveda*, it means altering the state of consciousness so as to result in a profound and sustained change in perception of reality. All the classical texts of *Āyurveda* proclaim in unison that the source spring of Āyurvedic knowledge is the realm of non-ordinary modes of consciousness.[14]

The mythological account of the origins of *Āyurveda* is an allusion to altered states of consciousness in which the knowledge of *āyurveda* is automatically revealed. Brahmā, Prajāpati, Aśvinī Devas and Indra, from whom the knowledge of *Āyurveda* has descended to human beings represent altered states of consciousness which can be evoked in states of meditation. The very word Indra means to know. Indra denotes the human mind that has been awakened by rigorous training. Indra is one who has a thousand eyes (*sahasrākṣa*) because he has performed a hundred *yāgas* (*śatakratu*).[15] The gist of the story is that the knowledge of *Āyurveda* was discovered in an enhanced state of awareness.

Āyurvedic education sought to transform the consciousness of the student so that s/he is established in a higher level of consciousness. Since this involves a transmutation of the mind, a successful student is said to be twice born.[16] To bring about this change, *Āyurveda* advocates modifications in lifestyle, diet, mental attitude and also the intake of certain medicinal recipes and formulations.[17]

An aspirant who is able to effect this inner transformation gets grounded in the direct experience of the teachings of *Āyurveda*. If this is not possible, then an understanding of the teachings of *Āyurveda* that is partly experiential can be obtained by exercising the rational faculty or at least some practical guidelines can be derived that could be applied in real life situations.

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[14] *Caraka-Saṁhitā*, 1.1.28 states that *Āyurveda* was discovered by the sages by awakening the third eye — *maharṣayaste dadṛśur yathāvat jñānacakṣuṣā.*

[15] All the classical texts narrate the legend of transmission of *Āyurveda* from Brahmā to Indra through Prajāpati and Aśvinīs. See *Caraka-Saṁhitā*, 1.1.3-5 ; *Aṣṭāṅgahṛdayam*, 1.1.3-4; *Suśruta-Saṁhitā*, 1.1.20

[16] *Caraka-Saṁhitā*, 6.1.4.52 — *vidyāsamāptau bhiṣajo dvitīyā jātirucyate, aśnute vaidyaśabdaṁ hi na vaidyaḥ pūrvajanmanā, vidyāsamāptau brāhmaṁ vā sattvamārṣamathāpi vā dhruvamāviśati jñānāttasmādvaidyo dvijaḥ smṛtaḥ.*

[17] *Brahmā rasāyana* and *aindra rasāyana* are formulations mentioned in *Caraka-Saṁhitā* 6.1.1.41-58, 6.1.3.21-24 to alter the states of consciousness and develop the ability to study knowledge systems like *Āyurveda.*

Direct perception (*pratyakṣa*) and inference based on perception (*anumāna*) are the two powerful tools of knowledge employed in *Āyurveda*.[18] Direct perception can be either sensory or supra-sensory. The former operates in the rational realm and the latter in the realm of intuition. Inference bridges the gap between these two kinds of perception. Inference is the understanding of what is invisible by closely observing its relationship with what is visible. It stretches sensory perception to the maximum possible limit. To go beyond inference, one has to operate at the level of supra-sensory perception.

Direct perception operating at the sensory level (*laukika pratyakṣa*) and inference based on perception (*anumāna*) constitute the tools to organize the rational faculty of the human mind. Direct perception operating at the supra-sensory level (*alaukika pratyakṣa*) is synonymous with the awakening of the intuitive faculty.

The experiences gained in altered states of consciousness are communicated and preserved through verbal testimony as this realm is accessible only to a select few. Verbal testimony relating such experiences are authoritative and not questioned by people operating at a lower level of awareness. This has often been mistaken as blind belief in authority. Verbal testimony relating to experiences gained in ordinary modes of awareness do not have such an authority and is open to verification through direct perception and inference.[19]

The study of *Āyurveda* begins with an attempt to understand and appreciate the content of verbal testimony that reports experiences from the realm of supra-sensory perception. This is achieved through an elaborate analysis of the teachings in order to arrive at a proper understanding of their import. This is an attempt to demystify the teachings of *Āyurveda*. Such an understanding is called *jñāna*.[20]

The next step is to personally verify the veracity of the teachings. This is not possible to execute with satisfaction in ordinary modes of consciousness. An attempt to understand the import of the teachings and derive guidelines for practical application will facilitate the transformation of consciousness to gain direct experience of the teachings of *Āyurveda*. This is *parīkṣā* or investigation that culminates in *vijñāna*[21] or informed experience.

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[18] *Caraka-Saṁhitā* , 3.4.5 — *tasmāddvividhā parīkṣā jñānavataṁ pratyakṣam, anumānaṁ ca*

[19] Ādi Śaṅkara points out that sensory and extrasensory perception are powerful in their own domains. But matters in the domain of sensory perception cannot be overridden by extrasensory perception. Even if a hundred Vedic texts declare that fire is cold and devoid of light, it cannot become an authority here. Veda is an authority only with regard to the realm of extrasensory perception. See Swami Atmananda, pp. 31-43.

[20] *Caraka-Saṁhitā*, 3.4.5 — *trividhe tvasmin jñānasamudaye pūrvam āptopadejāt jñānaṁ.*

The transition from *jñāna* to *vijñāna* takes place through a process of enquiry called as *parīkṣa*. *Parīkṣa* means investigation. The ancient teachings encourage investigation and in fact emphasize that *Āyurveda* can be successfully applied only if its teachings are thoroughly investigated into.[22] Knowledge becomes complete when there is experience of what is understood and understanding of what is experienced. *Jñāna* is understanding and *vijñāna* is experiencing.

What then is the ultimate proof of knowledge? Is it direct perception, inference based on perception or verbal testimony? A careful study of the Āyurvedic texts gives one the impression that the journey from ignorance to wisdom starts with a distrust in internal proof, reliance on external proof and finally transcendence to a realm that is beyond all kinds of proof. When mental purity is attained, experience itself becomes the proof. The experience of an individual whose mind is free from *rajas* (emotional disturbances) and *tamas* (lack of awareness) is considered to be the ultimate proof of truth.[23]

The Dynamics of the Knowledge Building Process

Three pairs of terms used in the classical texts of *Āyurveda* throw interesting light on the dynamics of knowledge building process that has given birth to *Āyurveda*.

The first pair of words are *prākṛta* (the first creation or expression) and *saṁskṛta* (the refined expression).[24] This refers to the spontaneous process by which humans gather knowledge from experiences in life. It is this accumulated knowledge that gets filtered and refined to create the foundation of a culture or civilization. This is the process of knowledge building that originates as folk traditions and then is distilled to make up the classical traditions.

The second pair of words are *śāstra* (protective guidelines and innovations) and *vyavahāra* (the give and take activities of life).[25] These terms indicate the problem solving initiatives that generate knowledge and specialized applications to make life smooth. When the available knowledge cannot provide a solution to tackle new problems, special effort has to be taken to devise new solutions. Such applications change the course of day-to-day activities in a new direction.

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[21] *Caraka-Saṁhitā*, 3.4.5 — *tataḥ pratyakṣānumānābhyāṁ parīkṣopapadyate.*

[22] *Caraka-Saṁhitā*, 1.10.6 — *parīkṣyakāriṇo hi kujalā bhavanti.*

[23] *Caraka-Saṁhitā*, 4.5.7 — *sarvalokamātmanyātmānaṁ ca sarvaloke samamanupaśyataḥ satyā buddhiḥ samupapadyate* — states that through mental purity one acquires *satyā buddhi* or the intellect that can perceive truth.

[24] *Dhanvantari Nighaṇṭu*, Introduction, verse 2 refers to classical and folk names as *prākṛta* and *saṁskṛta nāma.*

The third pair of terms are Veda (deep insight) and *loka* (superficial perception).[26] Spontaneous knowledge building and application-oriented knowledge seeking cannot satisfy the yearnings of the human mind for long. A thirst for the ultimate meaning of life and the true nature of reality lies dormant in every being. When awakened, it carries one beyond the superficial understanding of appearances to deeper insights on the working of the universe.

Āyurveda has in the above manner elaborated the dynamic process of knowledge building that operates in human civilization to nurture a symbiotic relationship between the folk and classical traditions, which is bidirectional. In the first instance, the folk stream nourishes the classical, in the second the two streams nourish each other and in the third the classical stream nourishes the folk stream.

The Three-Tier Structure of the Knowledge of Āyurveda

It is possible to work with the knowledge of *Āyurveda* in three different ways — (1) Working in altered states of awareness with direct experience; (2) Working in ordinary modes of consciousness with an intellectual understanding and by rational application of concepts developed with reference to experiences encountered in higher levels of awareness; and (3) Working with operational guidelines derived from the experiences gained in non-ordinary and ordinary modes of consciousness without gaining an in-depth understanding or experience.

The knowledge of *Āyurveda* is organized on a three-tier structure from this perspective.[27] The first level of direct experience gained in altered state of consciousness is known as *tattva*. The word *tattva* means "thatness" or the

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[25] The word *vyavahāra* is used in the sense of practice in *Caraka-Saṁhitā*, 1.4.20 — *etāvanto hyalamalpabuddhīnām vyavahārāya* — and *śāstra* as the classical codified expression of *Āyurveda* is mentioned in *Aṣṭāṅgahṛdayam*, 6.40.72 — *candanādyapi dāhādau rūḍhamāgamapūrvakaṁ, śāstradeva gatam siddhiṁ jvare laṅghanapācanaṁ.*

[26] *Caraka-Saṁhitā*, 1.27.350 — *laukikaṁ karma yadvṛttau svargatau vaidikaṁ ca yat* — uses the terms *laukika* (from *loka*) and *vaidika* (from *veda*).

[27] *Suśruta-Saṁhitā*, 1.34.9 — *tattvādhigataśāstrārtho dṛṣṭakarmā svayaṁkṛti*. This verse mentions *tattva*, *śāstra* and *karma*. A grounding in these three levels makes the physican an innovator — *svayaṁkṛti*.

true nature of things. "Thatness" means subjective objectivity and objective subjectivity. To function at the level of *tattva*, both the intuitive and rational faculties have to be developed to perfection. The second level, which is partly experiential and partly conceptual involves rigorous training of the intellect in ordinary modes of consciousness and is known as *śāstra*. To function at this level, the rational faculty has to be fully developed. The third level of practice is based on deriving operational frameworks and practical guidelines known as *vyavahāra*. At this level, neither the intuitive nor the rational faculty are fully developed.

The three-tier structure corresponds to the three types of students — the gifted, the mediocre and the dull. The body of Āyurvedic teachings has been structured in such a way that all three types of students can derive benefit from it.[28] The dull witted can practice with the help of operational guidelines and protocols. The mediocre can understand the theory behind these practices and to some extent the experiential ground of these theories. The gifted student can actually experience the teachings of *Āyurveda* in both altered and normal states of consciousness.

Harnessing the Rational Mind with the Memory of Intuitive Experiences

Āyurveda is a *smṛti* (memory) according to tradition. Brahmā is said to have recollected the knowledge of *Āyurveda* and promulgated it.[29] This legend is a pointer to the fact that the foundation of the teachings of *Āyurveda* constitutes intuitive experiences which are not so easy to access by even Brahmā, let alone ordinary individuals. Therefore constant effort is to be taken to preserve the memory and understanding of the intuitive insights on which the edifice of the theory and practice of *Āyurveda* has been erected. The method of *Āyurveda* lies in the use of the rational mind with the vibrant memory of intuitive experiences. Experiences encountered in altered modes of consciousness serve as the backdrop on which rationality stages a powerful appearance. Even the approach to preserve the memory of intuition is an extremely rational process.

The teachings are studied very carefully by deciphering the meaning word by word. Grammatical and philological techniques are employed to differentiate the import of words with multiple meanings. *Śaktigraha* (extracting the power of a word) includes 22 techniques to decipher the meaning of difficult words. Further elaboration and interpretation of the teachings exercising caution to prevent distortion of original ideas involves the application of nearly 100 techniques classified under five categories called *tantra guṇa*s that brings out the technical sense of the classical writings in a very effective way.[30]

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[28] *Caraka-Saṁhitā*, 3.8.3, *trividhaśiṣyabuddhihitam*, the ability to communicate to the three levels of intelligence of the students is one of the characterisitcs of a *śāstra*.

[29] *Aṣṭāṅgahṛdayam*, 1.1.3, *brahmā smṛtvāyuṣo vedaṁ prajāpatim ajigrahat, aṣṭāṅga saṁgraha*, 6.50.207 *smṛtvedamuditaṁ pūrvam*. Both these quotations reiterate that *Āyurveda* was first promulgated through a process of recollection.

The modalities of sensory perception are thoroughly explored and its limits well defined. Valid sensory perception is the basis of inference, which is resorted to when the object of study is not completely visible at the sensory realm. Inference explores the relationship between a visible object and an invisible object to predict behaviour of phenomena. Inference has a very important role in diagnosis of diseases. An inference is possible when two objects or phenomena are related in an exclusive (*avyabhicāritva*), consistent (*avinābhāvasaṁbandha*) and inseparable (*ayutasiddhatva*) manner.[31] Exclusivity demands that the objects or phenomena under observation should not have any relationship with another object or phenomena that is outside the scope of the study. Consistency demands that the relationship between objects and phenomena should remain constant and should be always available for observation. Inseparability demands that the objects or phenomena under study should be totally dependent on each other. If these conditions are fulfilled, then inference is possible.

In other words, inference is the study of the relationship between the marker (*liṅga*) and the marked (*liṅgī*). So much does inference find application in *Āyurveda* that it is called as the science of marks (*lakṣaṇā*) itself.[32] The texts devote a lot of energy to point out the necessity to differentiate between true

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[30] See Aruṇadatta's commentary on *Aṣṭāṅgahṛdayam*, 6.40.78 — *iti tantraguṇair yuktaṁ tantradoṣair vivarjitam; cikitsāśāstram akhilaṁ vyāpya yat paritaḥ sthitam*. Aruṇadatta gives an elaborate description of the techniques used to decipher the technical meaning of the teachings of *Āyurveda*.

[31] *Āyurveda* applies *anumāna* to study the relationship between variables. *Caraka-Saṁhitā*, 2.8.27, states that the same sign may be seen in many diseases or the sign may be unique to a disease. One disease may present with many signs and many diseases may have many signs. There is a need to carefully study the relationship between diseases and signs — *liṅgaṁ caikamanekasya tathaivaikasya lakṣyate, bahūnyekasya ca vyādherbahūnāṁ syurbahūni ca*.

[32] *Caraka-Saṁhitā*, 3.8.152 — *lakṣaṇācāryaśiṣyāṇāṁ parīkṣā kāraṇaṁ ca yat*. Here the word *lakṣaṇā* is a synonym of *śāstra*.

angotri

and false markers. Fallacies of marking (*hetvābhāsa*) is a subject in itself.[33]

Āyurveda strongly advocates a rational approach to healing and insists that a cause and effect relationship exists in the natural world. There is a cause for everything, the *Caraka-Saṁhitā* declares, and the proper understanding of cause and effect relationships empowers the physician to work on diseased states and to restore health.[34]

The rational mind cannot comprehend in totality the sum of these complex causal relationships. The rational mind is inconclusive although it can focus clearly on specific areas. It, has to keep changing its premises because the knowledge it acquires is incomplete. It, however, becomes a powerful tool when brought under the sway of the intuitive mind, which can grasp the complexities of nature in totality. As a knowledge system, *Āyurveda* seeks to harness the rational mind while being grounded in the memory of intuitive experiences.

Developing the Skill to Manipulate Experiences

Āyurveda differentiates not only between experience and understanding but also emphasizes the need to develop the skill to manipulate events that make experiences. It will not be wrong to say that the level of *tattva* corresponds to experience, the level of *śāstra* to understanding and the level of *vyavahāra* to manipulation.

With a practical outlook, *Āyurveda* points out that it is not possible to manipulate experiences with the tools of direct perception, inference and verbal testimony. These tools give only understanding and experience but not the ability to change the course of experiences. It is one thing to understand the cause and progress of a disease and another thing to be able to do something to reverse it. *Āyurveda* has made a unique contribution to Indian epistemology by introducing *yukti* as a *pramāṇa* or tool of knowledge. *Yukti* is the perception of multiple factors involved in the experience of an event.[35] Control of these factors help to modify the event and change the experience.

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[33] *Tarka-Saṁgraha, anumānapariccheda* deals exhaustively with *hetvābhāsas* or fallacies of inference. *Caraka-Saṁhitā*, 3.8.27 elaborates the concept of *ahetu*, a fallacious marker or sign.

[34] *Caraka-Saṁhitā*, 2.8.41 — *vikāraḥ prakṛtiścaiva dvayaṁ sarvaṁ samāsataḥ, taddhetuvaśagaṁ hetorabhāvānnānuvartate.*

[35] *Caraka-Saṁhitā*, 1.11.25 — *buddhiḥ paśyati yā bhāvān bahukāraṇayogajān; yuktistrikālā sā jñeyā trivargaḥ sadhyate yayā.*

Yukti posits that every event takes place by the interplay of a multiplicity of opposing factors. By manipulating these factors, an event can be controlled. Direct perception, inference and verbal testimony should be extended to the realm of *yukti* so that operational protocols can be developed to modify the disease process and restore health.

Āyurvedic treatment is actually a carefully thought out design to skillfully control the opposing factors that work behind a disease so as to favourably influence the attempts to restore health and well-being. The classical teachings therefore emphasize the need to go beyond understanding and experience to the realm of skillful manipulation of events. The physician who has this ability is superior to one who has merely an experiential understanding of its teachings.[36] *Āyurveda* proclaims that it is based on *yukti* (*yuktivyapāśraya*),[37] and that success rests on the ability to control and modify events that can alter the course of a disease. To sum up, *yukti* enables the physician to thoroughly identify the favourable and unfavourable factors that operate to cause a disease with a focus on the details. The physician weighs the pros and cons to decide which factors should be controlled to re-establish health.

Āyurveda differentiates the role of medical intervention and other chance factors that may become instrumental in curing a disease. The texts point out that there are diseases which get cured without the help of any medicines, those that get cured with the help of medical intervention and those that do not get cured in spite of treatment.[38]

The physician is exhorted not to assume erroneously to have cured a self-limiting disease. Every single treatment should be subjected to analysis and rational enquiry to lay bare the factors that may have operated to reverse the disease process. A success that is not backed up with such a rational analysis is to be dismissed as accidental success.[39]

It is pertinent to note that *yukti* is not mentioned as a *pramāṇa* by any of

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[36] *Caraka-Saṁhitā*, 1.1.122 — *yogavittvapyarūpajñastāsāṁ tattvaviducyate.*

[37] *Caraka-Saṁhitā*, 1.2.16 — *mātrākālāśrayā yuktiḥ siddhiryuktau pratiṣṭhitā, tiṣṭhatyupari yuktijño dravyajñānavatāṁ sadā.* This verse emphasizes that success in Āyurvedic practice is dependent on *yukti.*

[38] *Aṣṭāṅgahṛdayam*, 6.40.60-67 — discusses about the scope of treatment with reference to self-limiting, curable and incurable diseases.

[39] *Caraka-Saṁhitā*, 8.2.28 — *tasmāt satyapi nirdeśe kuryādūhya svayaṁ dhiyā, vinā tarkeṇa yā siddhiryadṛcchāsiddhireva sā.*

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the other classical knowledge systems of India. Even within the Āyurvedic tradition, only the school of general medicine embodied in the *Caraka-Saṁhitā* has explicitly projected *yukti* as a *pramāṇa*.[40]

Limits to Āyurvedic Epistemology and the Trans-scientific Nature of *Āyurveda*

If there is one thing that prevented knowledge systems like *Āyurveda* from taking the direction of science as we understand it today, it has been the distrust in the ability of the rational and ordinary mode of consciousness to generate definite knowledge. Therefore attempts to extend the scope of sensory perception did not gather momentum. Rather the focus was on nurturing the ability to awaken higher modes of awareness to transcend the limits of sensory perception. The recognition that the rational faculty cannot comprehend reality in a holistic way discouraged the growth of the experimental method. Thus, the application of extended sensory perception and the method of experiment, the strongholds of science do not figure prominently in Āyurvedic epistemology.

However, *Āyurveda* talks about existence of entities beyond the ken of sensory perception. The existence of microbes has been recognized and the texts clearly state that these micro-organisms are not visible to the naked eye (though it is not clear how their existence was discovered in the first place).[41] The idea of experimentation and the testing of hypothesis is also not new to *Āyurveda*. The texts talk about hypothetical assumptions that get restricted or universal acceptance as valid propositions after rigorous testing by researchers. Tested and verified propositions are called as *siddhānta* which means definite conclusion.[42]

Āyurvedic texts recognize the limitations of its epistemological approach. After describing the gross anatomy of the human body, the *Caraka-Saṁhitā* boldly confesses that what is described further is speculative and not final.[43]

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[40] *Caraka-Saṁhitā*, 1.11.17 — *tasya caturvidhā parīkṣā āptopadeśaḥ pratyakṣam anumānaṁ yuktiśceti.*

[41] *Aṣṭāṅgahṛdayaṁ*, 4.14.51 — *apādā vṛttatāmrāś ca saukṣmyāt kecid adarśanāḥ.* This verse describes the features of microbes present in blood. These microbes are said to have a coppery colour, do not have feet and are invisible to the naked eye.

[42] *Caraka-Saṁhitā*, 3.8.37 — *atha siddhāntaḥ-siddhānto nāma sa yaḥ parīkṣakairbahuvidhaṁ parīkṣya hetubhiśca sādhayitvā sthāpyate nirṇayaḥ, sa caturvidhaḥ-sarvatantrasiddhāntaḥ, pratitantrasiddhāntaḥ, adhikāraṇa siddhāntaḥ, abhyupagamasiddhāntaśceti.*

[43] *Caraka-Saṁhitā*, 4.7.14 — *anirdeśyam-ataḥ paraṁ tarkyam-eva.*

The limitations of the faculty of perception without the aid of external instrumentation prevented the ancient physicians to arrive at an accurate understanding of the microscopic anatomy of the human body. The Āyurvedic texts do not claim that all that is written down is authoritative and final. Speculative thoughts and assumptions are clearly demarcated and highlighted. However, when it comes to experientially verified truths, the texts mince no words in declaring its authority.[44]

Both science and Veda (the method of knowledge building adopted in *Āyurveda*) accept the limitations of ordinary modes of consciousness and sensory perception. While science strives to extend sensory perception through the agency of sophisticated instruments, Veda attempts to transcend the limitation by reaching out to higher levels of awareness. Science takes the position of exclusivity by dismissing methods other than direct perception and inference as valid tools of knowledge. Meditation is beginning to catch the attention of scientists as a useful tool to calm the mind and normalize the body but it is yet to gain reputation as a valid tool to build knowledge. Veda, on the other hand, is inclusive and accepts both the intuitive and rational modes of consciousness as valid sources of knowledge.

Āyurveda cannot therefore be strictly called a science. *Āyurveda* does not oppose the methods of science, and so it is not correct to call it unscientific. Because *Āyurveda* does not seek to masquerade as a science, it is not fair either to characterize it as pseudo-scientific. It therefore seems appropriate to understand *Āyurveda* as a trans-scientific system of knowledge that accepts but transcends the method of science.

References

Acharya, Yadavji Trikamji (ed.), *Caraka-Saṁhitā*, Varanasi: Chaukhambha Surabharati, 2000.

——— (ed.), *Suśruta-Saṁhitā*, Varanasi: Chaukhambha Surabharati, 1994.

Acharya Kedaranatha Tripati, *Tarka-Saṁgraha: Nyāyabodhinī Sanskrit and Hindi Vyākhyāna*, Varanasi: Kashi Hindu Viswavidyalaya, 1985, 2nd edn.

Athvale, Ananth Damodar, *Aṣṭāṅga-Saṁgraha*, Poona: Mahesh Anand Athvale, 1980.

Expanding Horizons of Health Care — Five Year Strategic Plan 2001-2005, National Centre for Complementary and Alternative Medicine (NCCAM); 25 September, 2000; NIH Publication No. 01-5001.

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[44] *Aṣṭāṅgahṛdayam*, 6.40.81 — *idam āgamasiddhatvāt pratyakṣaphaladarśanāt, mantravat saṁprayoktavyaṁ na mīmāṁsāyaṁ kathañcana* which is a reproduction of *Suśruta-Saṁhitā*, 4.1.76

Paradakara, Hari Sadasiva Sastri (ed.), *Aṣṭāṅgahṛdayam*, Varanasi: Chaukhambha Surabharati, 1994.

Ojha, Jharkhand and Umapati Mishra (ed.), *Dhanvantari Nighaṇṭu*, Varanasi: Chaukhambha Surabharati Prakashan, 1996, 2nd edn.

Srikanthamurthy (trs.), *Bhāvaprakāśa*, Varanasi: Chaukhambha Sanskrit Series, 1988.

Swami, Atmananda, *Śaṅkara's Teachings in his Own Words*, Mumbai: Bharatiya Vidya Bhavan, 1989, V edition.

WHO, *Traditional Medicine Strategy 2002-2007*, Geneva: World Health Organization, 2002.

10

Social Organization of Knowledge in India

Folk and Classical Traditions

A. V. Balasubramanian

It is an interesting and fascinating aspect of knowledge in India that it prevails in diverse ways and is expressed at varied levels. In many areas such as Medicine, Arithmetic, Agriculture, Grammar, Language, Dance, Music and Astrology, to name just a few, there is wide and extensive knowledge both at the level of the classical texts and the folk traditions. Quite commonly, they are referred to as *śāstra* and *loka paramparā* respectively. This is a significant feature of knowledge formation in India and perhaps no major civilization other than the Chinese has this aspect. I would like to illustrate this with examples from a few areas and discuss the implications.

Let us start with Traditional Health.

Indigenous Health Traditions

The Indian sub-continent abounds as it were in a variety and diversity of health traditions. We have with us what is perhaps the longest unbroken health tradition which has not only a stream of practitioners but also a textual and theoretical backing in terms of the Āyurvedic and *siddha* systems of medicine (Balasubramanian & Radhika:1989). They have made their presence felt even outside India, in other parts of Asia such as China, Thailand, Cambodia and Indonesia. However, what is most remarkable about the Indian medical tradition is that it prevails at two different levels, namely the classical system and the folk system. By the classical system, we refer to the codified systems such as *Āyurveda*, *Siddha* and *Ūnānī* traditions. They are characterized by institutionally trained practitioners, a body of texts and highly developed theories to support their practices. As against this, we also have a folk tradition (or what may be termed as the *loka paramparā*) which is an oral tradition

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passed on from father to son or mother to daughter (or daughter-in-law) or from *guru* to *śiṣya* in tens and thousands of our villages through the ages. These folk traditions are rich and diverse and include several practitioners as the following list illustrates :

- Home remedies and cures for common ailments.
- Hundreds of thousands of folk and tribal practitioners known as — *vaidus, nāttu vaidhyars, bhagats* who learn through oral traditions and who treat a variety of ailments.
- Knowledge and beliefs regarding foods — *pathyam* and *apathyam*, i.e., foods to be preferred or avoided during specific diseases or conditions such as pregnancy, by lactating mothers, etc.
- Folklore on health (e.g., proverbs relating to health).
- Individuals/families specializing in the treatment of specific diseases, e.g., jaundice, asthma.
- Knowledge of diagnostic procedures.
- Knowledge of preventive measures.
- Knowledge of *ṛtucaryā* or adaptation of food and regimen to suit the seasons.
- *Yoga* and other physical cultural practices of a preventive and promotive nature.
- Special areas such as bone setting, *viṣa-cikitsā* (treatment for poisons), *pañcakarma* (five purificatory procedures), etc.
- Over 600,000 *dāis* (traditional birth attendants) who perform home deliveries.

The relationship between folk and classical traditions is found to be symbiotic. There is a strong commonality of underlying theory and world-view expressed at the level of — *pañcamahābhūta* — theory of composition of matter, and *tridoṣa* — theory of causation of disease. There is also a striking common ground between the technical terms that are used by the expert practitioners and what is known to the folk practitioners. The technical vocabulary such as *vāta, pitta, kapha, uṣṇa, śīta, laghu, guru, guṇa, vīrya*, etc., are also very much part of the knowledge of folk practitioners and the households.

It is also interesting to see what the classical texts of *Āyurveda* say about folk tradition. The *Caraka-Saṁhitā* states that — *ouṣadihi nāma rūpabhyām, jañānte hyajapā vane, avipāścaiva gopāśca ye ca anye vanavāsinaha* — "the goat herds, shepherds, cowherds and other forest dwellers know the drugs by name and form. . ." (*Caraka-Saṁhitā, Sūtrasthāna*, Chapter 1, *śloka* 120-21). Similarly *Suśruta-Saṁhitā* states that — *gopālasthāpasā vyādha ye cānye vana carinaha, mūla jātihi ca tebhyo bheṣaja vyakti iṣyate* — one can know about the drugs from the cowherds, *tapasvī*s, hunters, those who live in the forest and those who live by eating roots and tubers (*Suśruta-Saṁhitā, Sūtrasthāna*, Chapter 36, *śloka* 10).

Proverbs in Tamil Literature

Though proverbs by their very nature are part of oral tradition, even amongst the most ancient Tamil literature, there are compilations of proverbs as well as profuse use of proverbs and references to them. The most ancient Tamil grammar *Tolkkappiyam* (*Poruladhigaram,* (II part) (Pillai)) assigns a formal status to proverbs. In the *Poruladhigaram* section of this text, we find the definition *Mudumozhi* is that which conveys its intent and meaning being possessed of the qualities of subtlety, brevity, clarity and simplicity. Proverbs carry an enormous amount of knowledge regarding priorities of foods, herbs and treatment — for example a Tamil proverb states that the paste of *harītaki* (*Terminalia chebula*) can be used for swelling of the eyes — this conveys the traditional wisdom that this herb is excellent and wholesome for the eyes. In Āyurvedic terms, it is described as *Cakṣuṣyam* that is beneficial to the eyes. Properties of foods are widely reflected in proverbs. A Tamil proverb says — "Sesame for the lean man and horsegram for the stout man." Horsegram is considered as *laṅghanīya* and depletes tissues and Sesame is considered *brumhanīya* that helps build tissues.

Seasonal Variations

Knowledge regarding changes in our digestive power with the varying seasons, has been well understood in society. As per the Āyurvedic view, food is digested by *agni* within us — just as it is cooked by *agni* outside. According to *Āyurveda,* there is a "stimulus-response" relation between the *agni* within us and the outside *agni* — namely the sun. When the *agni* outside is strong (i.e., in summer) the *agni* inside us (our digestion) is weak and vice versa. This is reflected in the way in which our food customs have been adapted to seasonal changes (Radhika & Balasubramanian, 1990). For example during winter, the breakfast taken is more *guru,* i.e., heavy (to digest) than what is consumed in summer; this is in keeping with the greater strength of our inner *agni,* i.e., the power of digestion, in winter. In south India, a variety of sweets are prepared to celebrate *Gokulāṣṭamī,* which is celebrated in a cold month. In contrast *Rāmanavamī* which is celebrated in summer, usually merits only *nīrmoar* (diluted buttermilk) and *pānakam* (a ginger-jaggery lemonade)! The effect of various seasons on health has also been noted. For example, in Andhra Pradesh, it is a custom to partake of preparations containing neem flowers and tender neem leaves at the onset of the *Vasanta ṛtu* (Spring season) and to continue taking it during that season. This is indeed a sound practice, since this serves as a corrective measure for *kapha doṣa*, which gets vitiated in this season.

Folk Knowledge Compared With Classical Textual Knowledge

The large number of proverbs in diverse areas such as agriculture or medicine are very important since they constitute a vast body of knowledge being the wisdom of thousands of years of experience. However, what is equally interesting is to know the relative importance or status assigned to such "folklore" in our tradition. While in any given area (such as medicine), there may be a body of experts or learned professionals who have specialised knowledge, knowledge also prevails in other forms more diffuse or scattered among the rest of the people. In Indian tradition, it seems to be a general principle running through all types of learning, that knowledge can and does prevail in various forms and also gets communicated in many ways, with each form serving its own purpose.

For example, songs and literary works are classified in five groups based on how they are formulated and how easy they are to comprehend, namely, as — *Nārikelapākam, Ikṣupākam, Kadalīpākam, Drākṣāpākam* and *Kṣīrapākam*, [Swaminatha Iyer, 1937]. The form most difficult to comprehend is the *Nārikelapākam* — it is like a coconut; to be eaten, the shell must be broken, the fruit grated and then mixed with food. *Ikṣupākam*, is the sugar-cane form — which has to be crushed to extract the juice. Next is the *Kadalīpākam*, the banana form which has to be just peeled to be eaten. Easier still is the *Drākṣāpākam* — grape form which can be eaten without any processing, and the easiest of all is the *Kṣīrapākam* or the milk form which cannot only be easily consumed, but also is a wholesome food for all ages and people in all conditions. In a similar vein in Sanskrit the literary compositions are classified into three groups: *Prabhu-Saṁhitā, Suhṛt-Saṁhitā* and *Kāṇṭha-Samhita* (Raghavan, 1979). *Prabhu-Saṁhitā* instructs like a *prabhu* or master who punishes when rules are transgressed (e.g., Instructions such as in the Vedas), *Suhṛt-Saṁhitā* instructs like a friend who advises on what to do and what not to do (e.g., like the Purāṇas), and *Kāṇṭha-Saṁhithā* which instructs like a *kāṇṭha* or one's beloved who advises and cites examples, coaxes or pleads or persuades as the situation may require to achieve the same end, namely *upadeśa* (e.g., as in *kāvyam*).

It is noteworthy that these different formulations or forms of communication are not understood as being part of a hierarchical system where one cannot replace or supercede another or is considered the generally superior form. Each one serves a specific need and may be the most appropriate for a particular context or for a given purpose.

The Nature and Social Organization of Knowledge in the Indian Tradition

In conclusion, we would like to sum up some aspects of the traditional Indian systems of knowledge, specifically theory construction and its relation to popular knowledge. The main feature is that the theories do not employ a great degree of "formalization" in the sense of providing laws or rules that are "absolute" and can be blindly applied outside of, or irrespective of, the context of their formulation. The terms and variables used in the theory and laws are closely related to actual observed phenomena or measured quantities often being their refinements. This does not mean that the theories lack rigour or precision or power. For example, the most rigorous and precise formulations and argumentation in areas such as logic or grammar or metaphysics are carried on in our tradition in *śāstric* Sanskrit, which is but a refinement of the natural Sanskrit language without recourse to any "formal" devices of abstraction. Thus, the laws, theories and its terminology bear a very live and intimate relation to the popular mode of discourse on the subject and the "folk-knowledge" of it.

This points to a very important feature of our Science and Technology namely that its knowledge, theories and principles are not meant to be reposed in a small number of experts, institutions or texts, but are created and shared on a wide scale, even by the ordinary folk who are the day-to-day practitioners of the arts and sciences. In fact, though we have used the term "folk knowledge" to denote knowledge with our people for want of a better term, its connotation is quite different in the modern context. In the modern Western view, "Folklore" is used to denote knowledge that prevails with the common people and gets propagated by oral tradition. This is as against classical or "proper" scientific knowledge which uses its own terminology, theories and abstractions and resides in a different body of people — viz., the experts. But in our tradition, this kind of a sharp qualitative difference does not seem to exist. The "folk" practitioners are also equally the innovators in the frontiers of their discipline and the theories and technical categories belong to their domain as well. If we consider, for example, a highly developed branch of Indian Science such as medicine, the basic theories at its foundation, such as the *pañcabhūta* theory of matter and the *tridoṣa* theory of causation of disease and its treatment are part of common knowledge of our people and a number of technical terms such as *vāta, pitta, kapha, agni, rasa, uṣṇa, śīta, vīrya,* etc., are all part of the vocabulary of our households.

The expert or specialist, seems to play a very different kind of role here, namely that of systematizing the corpus of knowledge. For example, in a discussion about the role of the Grammarian, the famous Grammarian Patañjali says:

> He who has the use of a pot goes to a potter's house and says 'make a pot; I have to use it.' But no one similarly gos to a Grammarian and says 'coin words; I shall make use of them.' He thinks of objects and makes use of words denoting them . . . the *loka* (i.e., what prevails in the world as usage) is the authority for the use of words. [Subramanya Sastri, 1944]
>
> — *Paśpaśāhnika* of Patāñjali *Mahābhāṣyam*

Thus there is no looking down upon the common folk or the lay practitioners; on the contrary the *śāstra* themselves assert repeatedly that it is in the concrete particular and in their use in a real situation that the truth of the *śāstra*s ultimately resides.

A strikingly similar expression is found in the attitude of Tamils towards their own grammar. It is said that the legendary poet, Kamban who composed the Tamil version of the *Rāmāyaṇa* once made use of the word — *nīrthumi* to represent water drop in a verse in the *Rāmāyaṇa* (Chettiar 165-67). He was promptly challenged by his counterpart, the great poet Ottakoothan who pointed out that all the standard lexicons of Tamil only used the word *neerthuḷi.* Kamban replied that the usage is correct since it is an accepted usage among the people. The story of the life of Kamban goes on to describe an instance where Kamban went for a stroll with Ottakoothan and the Coḷa King and while they were passing the tenement of the cowherd they heard the old lady of the household use the word *thumi* to describe a drop of buttermilk. Upon this, Kamban triumphantly expressed that his stand was vindicated and this was accepted by Ottakoothan.

Folk Traditions Today

There is every reason to believe that on the ground today, folk traditions are widespread in all areas in various walks of life and vibrant. There is every indication that they are showing dynamism and continuing to develop. Take for example the case of the resource base of traditional medicine. In the 1980s the Department of Environment of the Government of India initiated an — "All India Coordinated Research Project on Ethnobiology" with the objective of taking up a detailed assessment of the knowledge and use of Natural Resources by the tribal communities of India. The mid-term report of this programme that was published in 1994 indicated that these communities have knowledge of about 9,500 species of plants of which the single largest used category is medicinal plants accounting for over 7,500 species. This should be seen in the light of the fact that in the classical systems of medicine it has been estimated that the total number of medicinal plants referred to in the three major texts of *Āyurveda* is about 900 species. Hence, this is a truly stupendous number by any standard. We should also assess the information in the light of the fact that tribals constitute only about 7 per cent of the total Indian population even though they are perhaps a section of the population that live most closely in communion with nature.

Creativity at the Grass Roots

Several examples can be seen all around of the active use of not only natural products but also the new synthetic products for a variety of purposes. A remarkable instance of the use of an exotic species by the tribal has been documented by Winin Periera (Periera, 2000: 34). In the 1980s the Forest Department had started to introduce the species *Acacia auriculaeformis* in rural areas of Maharashtra. The seeds of these exotic species were first introduced in the area of Warli *ādivāsīs* around 1985. It was observed as early as 1987 that the Warlis have been catching fish by stupefying them with the seeds of *Acacia*. It takes about two years for *Acacia* to flower and fruit and the *ādivāsīs* research has indeed been carried out very quickly. What makes this achievement truly remarkable is that there is no record of the use of seeds of *Acacia* for this purpose as of that time either in modern literature or a traditional use in Australia which is the place of its origin. It is a remarkable testimony to a keen sense of observation and creativity at the grass roots. Many such examples can be given.

Regarding Establishing Links between Folk and Classical Traditions

In recent years there has been a strong revival of interest in traditional knowledge systems particularly in the context of the use of bio-resources.

There has been extensive research and documentation of folk and tribal traditions of bio-resource use in Asia, Africa and Latin America. What makes the Indian situation quite strikingly impressive is that we have not merely extensive and deep folk traditions but also classical textual traditions that bear symbiotic relationship to the folk traditions. This offers outstanding opportunity and possibilities for revival and strengthening of traditional knowledge since a weakened oral tradition can also derive strength and vitality from its classical counterpart. A linkage between the folk and classical can also infuse new life into the theories of classical systems which may have got alienated or cut off to some extent from the mainstream Indian society. This may have happened particularly in the last two centuries during the colonial period where there was a widespread and large scale disruption and disorganization of many of our traditions, societies and institutions. It appears that our society is in the phase of a slow process of regeneration of folk traditions and establishment of linkages between folk and classical traditions. This would certainly prove to be an important step in exploring and developing the current relevance and potential of Indian knowledge systems in varied areas.

References

Balasubramanian, A.V. and M. Radhika, 1989, *Local Health Traditions : An Introduction*, Chennai: Lok Swasthya Parampara Samvardhan Samithi.

Caraka Saṁhitā, Sulra Slhana, Chapter I, *śloka* 120-121.

Chettiar, Veerasami, Undated, *Vinodarasamañjarī*, Chapter 10, (B. Ratha Naicker and Sons), pp. 165-67.

Ethnobiology in India: A Status Report, All India Coordinated Research Project on Ethnobiology (Ministry of Environment and Forests, Government of India, New Delhi), 1994.

Periera, Winin, 2000, "The Case of Acacia auriculaeformis," *Indianet Issue*, 31-34, February 2004.

Pillai, S.K., *Tholkappiyam - Poruladhigaram* (Second Part).

Rahika, M. and A.V. Balasubramanian, 1990, *Ayurvedic Principles of Food and Nutrition*, Part 1, Chennai: Lok Swasthya Parampara Samvardhan Samithi.

Raghavan, V., 1979, *Prataparudriyam* of Vidyanatha (ed.), Madras: Sanskrit Education Society.

Subramanya, Sastri P.S., (Vaidyaratna), 1944, Lectures on *Patañjali's Mahābhāṣya*, Vol. 1 (quoted from *Paspasāhnika of Patañjali's Mahābhāṣya*, Annamalai University.

Susrulha Saṁhita, Sulra Slhana, Chapter 36, *śloka* 10.

Swaminatha Iyer, U.V., 1937, *Ninaivu Mañjarī*, Part II, quoted from a speech of Dr. U.V. Swaminatha Iyer delivered in Madras.

Part IV

Psychology, Polity and Sociological Texts

11

Psychology
Five Major Indian Contributions

Matthijs Cornelissen

ONE can look at knowledge systems other than one's own in two ways: sympathetically, as a source of insight that can potentially enrich, complement or even replace one's own way of looking at reality, or objectively, as a curious cultural characteristic of others than oneself. The latter is the approach of most historical and ethnographical studies. These disciplines study non-Western knowledge systems not for their intrinsic value, but in order to develop insight into the people and cultures that have produced them. Within modern science, Indian knowledge systems have been studied almost exclusively from such a third person, historical or ethnographical perspective. This is a serious loss for the developing global culture, as it effectively sidelines the contribution these knowledge systems could make to our collective insight into ourselves and in the world around us. It is true that since a long time Buddhist and Hindu Art is accepted as part of our collective heritage. It is even *bon ton* to admit that Buddhist and Hindu scriptures contain nuggets of truth that can help people with a certain disposition in their personal life, but the contribution Indian thought can make to mainstream modern science is largely ignored. This is perhaps understandable as a leftover of nineteenth-century's colonialist parochialism, but given the excellent modern communication facilities it is not excusable, for there are several subjects in which the Indian tradition has produced knowledge that is undeniably more comprehensive, reliable and socially relevant than what the, as yet, largely Euro-American modern science is producing. A prime example of such a subject, to which the Indian tradition can make extremely valuable contributions, is psychology.

In this paper I will highlight five specific areas in which the Indian tradition can make a major contribution to psychology as an academic science:

1. ***Philosophical Foundation***: The Indian tradition provides a comprehensive philosophical framework that cannot only support the enormous wealth of psychological knowledge inherent in its own spiritual paths, but also, and with equal ease, all branches of modern psychology. The core of this philosophical framework is its insight into the nature and role of consciousness, which provides a considerably more fruitful foundation for the social sciences than the materialist and reductionist theories and methods that still dominate Western approaches.
2. ***Epistemology and Methods of Subjective Enquiry***: With consciousness-based ontology as its foundation, the Indian tradition contains a perfectly coherent theory of knowledge that has spawned numerous rigorous and effective techniques to arrive at valid and reliable insights in the subjective domain.
3. ***Theories of Self and Personality***: The Indian tradition has an understanding of the Personality and the Self that is more comprehensive, coherent and rewarding than any other personality theory presently available in academic psychology.
4. ***Special Areas of Psychological Theory***: There are a number of specialized fields of psychology to which the Indian tradition has made extremely interesting contributions. Subjects that come to mind include emotions and aesthetics (e.g., Bharata's theory of *bhāva* and *rasa*), language, motivation, human development, etc..
5. ***Applied Psychology: Pathways for Change***: Last, and perhaps most important, the different approaches to *yoga* contain insights and techniques to bring about psychological change, that can revolutionize applied fields like psychotherapy and education.

Each of these areas is a world in itself and deserves to grow into an independent discipline within the wider field of Indian psychology. Here, I can only indicate a few major directions. There is one point, however, that I will work out in some more detail because it is the foundation of all the others, and that is the Indian concept of consciousness. I will base myself for this exposition on the work of Sri Aurobindo, who has not only produced a comprehensive synthesis of the different schools of Indian thought, but also added a dynamic, evolutionary element missing in the tradition as it is commonly understood.

Philosophical Foundation

THE ALL-PERVADING BRAHMAN

The heart of Indian philosophy is the concept of the *all-pervading Brahman* (Philips, 1997).

It is remarkable that in the ancient scriptures the simple mentioning of *Brahman*'s name is enough to settle all doubt. In the *Kena Upaniṣad*, which might well qualify as mankind's shortest and yet most profound introduction to cognitive science, there is, for example, a sweet and famous story in which the gods, after a difficult and laborious victory over evil, have become too cockish for their own good. The gods obviously need a lesson in modesty, and *Brahman*, the Absolute One, appears in their midst in the form of a simple blade of grass. The gods are baffled by this sudden appearance of a blade of grass in their heavenly abode, and each one of them tries to deal with it in his or her own typical way. But to their great consternation Agni (fire) cannot burn it, Vāyu (wind) cannot blow it away, and even Indra (mind) cannot grasp or destroy it. When Umā (dawn) finally recognizes that the blade of grass is no other than *Brahman*, all the gods are stunned and instantly realize the folly of their pride: they are forced to acknowledge the One who infinitely surpasses them.

When we take the gods as divine personifications of fundamental psychological powers and processes, the interpretation of the story is not difficult: Agni, the basic human drive and aspiration, Vāyu, the force of the pure heart, and Indra, the Lord of the mind, are great powers, no doubt, but by themselves they have neither power nor value. In fact, by themselves they could not even exist. As Umā, the first dawn of pure discernment, points out to them, there is a "secret ingredient," an Absolute that makes them what they are and that, at the same time, infinitely and eternally surpasses them. That secret One is *Brahman*, at once the ineffable Transcendence, the all-comprehensive Cosmos, and the ultimate individual Presence. There is nothing beyond Him, nothing outside of Her, nothing too small for It. This lesson in humility is perhaps the one lesson modern man is most urgently in need of.

For the ancient ones, the mentioning of *Brahman*'s name was sufficient, but our sceptical modern mind is not as easily satisfied as these more ancient gods; it does demand further argument. It wonders specifically why the realization that *all is Brahman* would give any more satisfaction than the realization that all is energy, mass, charge, charm, spin, or whatever else modern physics may tell us. The modern mind might actually argue that the latter concepts are more useful as they can be quantified and mathematized while the former are intangible, if not incurably ineffable. But contrary to what modern man would believe, and in spite of the immediate practicality of the more mundane physical explanations of reality, there is good reason to hold that *Brahman* actually is superior to any purely material concept as the ultimate explanation of the Universe. The main ground to believe so, is that the concept of *Brahman* is more comprehensive and integral in the deep sense of the Sanskrit word *pūrṇa*. To be specific, *Brahman* includes three crucial elements missing in an essentially physicalist psychology, Personhood, Consciousness and Infinity. While it is impossible to arrive at a full understanding of what it means to be a conscious Self on the basis of our present understanding of matter as unconscious substance, it is perfectly possible to develop a good understanding of matter on the basis of the complex Indian understanding of *saccidānanda*: the lower can be explained in terms of the higher, but the higher cannot be explained in terms of the lower without losing somewhere on the way its very essence.

For a full mastery we need both types of understanding, the spiritual as well as the scientific. As the *Īśa* says:

> Into a blind darkness they enter who follow after the Ignorance,[1] they as if into a greater darkness who devote themselves to the Knowledge alone. . . . He who knows That as both in one, the Knowledge and the Ignorance, by the Ignorance crosses beyond death and by the Knowledge enjoys Immortality.
>
> — *Īśa Upaniṣad*, Sri Aurobindo's tr., 1996: 21-22

But to integrate both, the materialist framework will not do. The integration, which the *Īśa* demands, is only possible in the more comprehensive explanatory framework of the ancient, *pūrṇa vedānta*. The key of this framework, the conceptual link between the higher and the lower, the absolute and the relative, spirit and matter, is the understanding of *Brahman* as Saccidānanda, which, in its turn, is based on a marvellously rich and complex understanding of the role of Consciousness, not only in the individual but also in the "outer" social and physical reality.

THE INDIAN CONCEPT OF CONSCIOUSNESS

Before we try to go deeper into the Indian understanding of consciousness, it may be useful to realize that Western science and philosophy have failed abysmally in their attempts at developing a coherent understanding of consciousness. In the beginning of the twentieth century the scientific study of consciousness was for all practical purposes given up, and for about 80 years, consciousness became more thoroughly taboo in academia, than sex had been in Victorian England. Though recent progress in neuroscience and artificial intelligence has revived scientific and philosophical interest in consciousness, the 1997 edition of the *Penguin Dictionary of Philosophy*, for example, had not even an entry for consciousness.

The explanation for this is to be found in the peculiar history of modern science in Europe. Since the European "Enlightenment," European thought has laboured under a strict separation of Church and State, Religion and Science, Spirit and Matter. In a civilization where the dominant religion was tied to well-established doctrine by a strong central authority, this was probably needed to create space for secular progress, and the "Cartesian Split" is widely believed to have helped the physical sciences to prosper. But it has created insurmountable problems for the social sciences and especially for psychology. The crux of these problems is that an exclusive study of external, physical "behaviour" can give psychology no more insight into the human psyche than what a quantitative analysis of paper and ink can contribute to literary studies. Just as literary criticism cannot escape from difficult issues such as "meaning" and "beauty," a psychology worth its name cannot escape from the study of subjective experience, thoughts, feelings, and consciousness. Sneaking these back into "objective science" by the back door of objective studies of subjective self-reports that are based on naïve forms of introspection, as psychology has done in the second half of the twentieth century, introduces low quality subjective data that no amount of sophisticated statistical analysis can remedy. Comparing the way modern psychology collects data with the manner, in which the exact sciences arrive at their basic data, may make the situation clearer. Astronomy, for example, obviously does not make progress by surveying what random members of the population see in the sky during their evening stroll, but through the hard labour of exceptionally gifted, well-trained and equipped specialists. The Indian tradition has followed the same procedure for psychology: it has developed its massive base of solid knowledge about the inner realities of consciousness by making use of a small number of highly motivated and gifted individuals. Western psychology, on the other hand, has tried to study directly what is going on in "the common man" by simply asking that "common man" what is going on inside. It is hardly surprising that this has led to a science that has failed to rise above first appearances.

There is still another direction in which self-imposed limitations have created entirely unnecessary difficulties for psychology. Mathematics and even physics cannot prosper without incorporating in their systems the abstract and immeasurable notions of absolute zero and infinity. For very similar reasons, one cannot have a meaningful psychology as long as one leaves out the possibility of "pure consciousness" and the existence of the soul, the spirit, and even the Divine. However difficult these things may be to measure "objectively", the numinous is much too crucial a part, of what it means to be human, to be ignored with impunity. The European solution of allotting the secular and the spiritual to two entirely independent and non-communicating knowledge systems may have been useful to get rid of a dogmatic religion, but in the long run it is not a healthy solution. It is rather the sign of a collective multi-personality disorder that might well prove fatal for the human race if it spreads much further than it has done already.

As a result of this amazingly inapt approach, the prevalent concept of consciousness in Western science suffers from two serious defects. The first is that it is limited to sensorial awareness of one's surrounding (in other words to *manas* in its most narrow denotation of sense-mind). Though this is an useful concept for neurosurgeons and anaesthetists who need to determine whether a patient has "regained consciousness" or not, it is not suitable for wider use in psychology, as it doesn't do justice to the wide range of entirely different types of consciousness human beings can have. It is equally unusable for evolutionary biology and philosophy because it turns consciousness into a freak phenomenon unconnected to anything else in nature. The second defect is that consciousness is still routinely confused with a variety of mental functions which often, but not always, go together with human consciousness. Both are rather primitive errors, which were already recognized as such in the earliest Upaniṣads and the most ancient texts on *yoga*, but they have been common throughout the history of modern Western thought right up to the present.

There are still a few caveats before we finally will dive into the Indian concept of consciousness. The first is that one could well argue that there simply exists no such thing as "the" Indian concept of consciousness. There are several Sanskrit words that are routinely translated as 'consciousness,' and this leads, obviously, to quite different understandings of the nature and role of consciousness in the Indian tradition. In this essay, I will follow Sri Aurobindo's conventions for the terminology: I will use the word

"Consciousness" mainly for *cit* and its derivates, I will systematically use "Self" for the *puruṣa* and the *ātman*, and I will keep the word "ego" for the *ahaṁkāra*, the temporary formations in the outer nature, with which the *puruṣa*, mistakenly, identifies itself.

Second, there are many different schools of thought in the Indian tradition. If there are 30 crore gods in the Indian pantheon, we might expect at least as many concepts of consciousness. The following discussion is not meant as an historical overview of all these different concepts, but as an attempt at distilling the underlying essence, the core that is needed to put modern psychology on a more fruitful track. Though it is largely based on Sri Aurobindo's work, it is not a verbatim rendering of his writing or, for that matter, of any other Indian source. It is my own rendering in modern psychological terminology of what I see as the common essence of the many different Indian positions.

The third difficulty is that everything related to consciousness is interrelated. Different aspects of consciousness can conceptually be separated, but they are still part and parcel of the single reality of *Brahman*. Awareness and form-giving Energy, Oneness and Duality, Self and Nature, can all be discussed separately but their underlying reality is one. The following 12 points should thus not be considered in isolation, or in opposition to each other, but together.

The last and perhaps most serious problem is that, as a matter of principle, the human mind cannot fully understand the Indian concept of consciousness. Modern science and Indian spirituality are both aware of the fact that Reality surpasses our capacity to understand it, but they deal with it differently. Popular science may make rash statements of the type: "Earlier we used to think that it was like this, but now we know that it is like that," but real science doesn't do so, it always remains open to the possibility that its conclusions will be refuted or refined in the future. Openness to what is beyond our (present) knowledge is an essential element of science. A Dean of the physics department at Cambridge University is reported to have told one of his ex-students that the M.Sc. programme had only two objectives: (1) to convince the students that they know nothing; (2) to teach them how to continue learning without being taught! There is however one big difference between the pursuit of spiritual knowledge and the pursuit of scientific knowledge. While in science the "extra" is seen as "more of the same," in the Indian spiritual tradition the "extra" is seen as something of another order, something ineffable beyond the whole category of mental statements. In this context it is interesting to note that the way of dealing with that ineffable "extra" seems to have changed in India over time (Aurobindo, 1972a, p. 68). The authors of the early Upaniṣads and Vedas give the impression that they discuss reality while solidly established on heights of spiritual understanding quite beyond the mind. It appears that these ancient *ṛṣi*s were still breathing the underlying oneness, and simply juxtaposed different approaches to the ineffable Absolute without the slightest worry about the logical contradictions this would entail. The medieval exponents of the six *darśana*s, on the other hand, were much more deeply engrossed in their mental logic, and they carried it to its extremes with all the enthusiasm of new converts. Even while at some summit of their being they must have been aware that the "real" reality surpassed their mind, they discuss truth in terms of exclusive mental categories: if the Ultimate is Personal, then it cannot be Impersonal; if it is Immutable, then it cannot be Mutable and so on. Only a few had the courage to carry logic to its bitter end and proclaim, like Nāgārjuna, that the Real is not A, not not-A, not both and not neither.

Seen from within the Indian system, it is easy to understand why the mind is incapable of arriving at a complete understanding of consciousness: the mind itself is considered to be just one, comparatively minor manifestation of conscious-existence. The aim of studying philosophy and psychology is thus, even in the later *darśana*s, not only to collect mental information and argument, but to surpass the mind and reach a higher order of knowing. As Sri Aurobindo wrote:

> The knowledge we have to arrive at is not truth of the intellect; it is not right belief, right opinions, right information about oneself and things, that is only the surface mind's idea of knowledge. To arrive at some mental conception about God and ourselves and the world is an object good for the intellect but not large enough for the Spirit; it will not make us the conscious sons of Infinity. Ancient Indian thought meant by knowledge a consciousness which possesses the highest Truth in a direct perception and in self-experience; to become, to be the Highest that we know is the sign that we really have the knowledge.
>
> — Sri Aurobindo, 1972a: 686

Even now, what the world is looking for in the Indian tradition is not just information — not even the right information. It is something we have to become.

In spite of these hurdles, I hope that readers with a deeper grounding in any of the many different Indian schools of thought than I have, will recognize at least some of their own views and intuitions in the following description.

1. ***Consciousness is Awareness:*** It is the light in which all is seen. (But awareness is not limited to our human, sense-based awareness. See below.)

The first and most obvious aspect of consciousness is "awareness." But what is awareness? Awareness belongs to the same category of things as time, of which Augustine said "as long as nobody asks, I know what it is, but as soon as someone does ask, I stumble." The *New Oxford Dictionary of English* defines awareness in terms of knowledge and perception, but then defines knowledge and perception in terms of "awareness." The Oxford team cannot be blamed for this circularity: because awareness is one of the foundational elements of our existence, classical definitions of the Aristotelian type that start from a more general term and then narrow it down, don't work. There simply is no appropriate more general term to define awareness with. To some extent one can show what awareness is not. When an electronic video camera "sees" the world the camera is making a picture of the world in some electronic form. Yet, there is little reason to presume the camera has any "awareness" of the world. Even if you could connect the camera to a robot, which could imitate all the complex computational processes that happen in the brain, it remains dubious whether you should call this robot "conscious" in an ordinary, human sense or not.[1] It is more and more widely held that even in humans, all behaviourally relevant cognitive processes can, and in certain special circumstances actually do, happen without awareness, which leads to the view that awareness is not an intrinsic part of those cognitive processes but something that can occur on top of them.[2] It is interesting that this standpoint gets quite close to the Sāṁkhya view in which perception

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1. The question whether it is possible to make non-conscious machines (zombies) that are functionally fully equivalent to human beings, is considerable more complicated than it looks at first sight. The *Journal of Consciousness Studies* published a long series of papers on this issue till one of the more perceptive participants brought up that according to the Indian tradition ordinary human beings are quite like zombies in the first place and that the most urgent question should not be how to create zombies, but how to stop being a zombie! After this the debate fizzled out in no time, *Journal of Consciousness Studies*, vols. 1 and 2.
2. For a slightly dated, but still relevant discussion of the empirical data, see Velmans, 1991.

takes place when the in-itself entirely independent *puruṣa* mixes with *prakṛti* (which is considered to be possible because of the *sāttvika*, *puruṣa*-like, qualities of the mind). In the Indian tradition it is often said that consciousness is the light in which the world is visible. In the *Kena Upaniṣad*, it is That that sees in the seeing, that hears in the hearing, that knows in the knowing. This "light" in which everything is seen is itself not a mental process, because it is not a part of *prakṛti*; it is the *puruṣa*, the Self. But being the witness and upholder of all that goes on in our mind, is not the only aspect of consciousness. As we will see below, consciousness as *cit* also pervades all that exists.

2. ***Consciousness is the Source of our Individual Identity:*** Consciousness is our self, or at least a power of the self (ātman and puruṣa are translated as both Self and Consciousness).

The second point about consciousness is that it is very closely related to our Self. It is the basic source of our identity. When you wonder what the difference is between a camera and a human being, you could simply say, "in the camera, there is nobody home." The technology is there, but the person is missing; the seeing is taking place but there is nobody home who sees it. In short, the question of the *Kena Upaniṣad* is not answered. Sri Aurobindo calls consciousness a power of the Self but the two are so close that many scholars simply identify both as one and the same thing. For this reason both *puruṣa* and *ātman* are sometimes translated as consciousness and sometimes as Self. Experientially one could well argue that we humans are, more than anything else, our consciousness.

3. ***Consciousness is also Transcendent and Cosmic:*** Consciousness is the transcendent source and all-pervasive upholder of the universe.

In the "given" modern view of consciousness, all the consciousness that exists on earth takes place inside our brains, or at most in the brains of a few other highly developed animals. Consciousness is widely considered to be a state of the brain, and almost everyone sees it as a product of the brain that thus exists only inside those who have a brain that is complex enough to generate it. According to the Indian tradition, it is just the other way around. Consciousness is the very stuff of which the world is made. It is primarily transcendent, secondarily universal and only in the third instance individual. Our little centres of consciousness are small emissaries of the real thing who mistakenly identify themselves with an individual mind, ego, life and body, just as if waves would think themselves to exist apart from the ocean. Through *yoga* we can retrieve our Selves from this entanglement and re-identify ourselves with the one cosmic and transcendent consciousness, which we always have been in our essence, even at the time when our surface mind was not "aware" of it.

4. ***Consciousness is Unitary:*** There is only one light in which all is seen.

A fourth basic and fascinating attribute of consciousness is that consciousness is unitary. There is basically only one consciousness. This singularity is true again on many different levels. One of the big problems of neuroscience at the moment is the "binding problem": we know that at any given time hundreds of parallel processes take place in the brain but there is no clear anatomical structure that is responsible for the fact that in the end we have only one integrated view of the world. Even when we compare different ways of looking at reality, we still rely on one extra frame into which we put these different smaller frames. At any given time we can *consciously* only do one thing, all the rest is done subconsciously. So our consciousness is a very small window on all those processes that take place in the mind subconsciously. The Indian tradition has focused on the unitary aspect on the scale of the manifestation as a whole. In spite of the Sāṁkhya position that there are many *puruṣa*s, the common understanding is that ultimately each separate self is one with the Supreme. In the end, there is only the one consciousness of the Divine that carries this whole world.

5. ***The Individual Self is one with the Cosmic and with the Transcendent Self:*** This is "the Knowledge, which, once known, makes everything known."

Each individual can realize his identity with the Absolute, every other and everything.

If you add up these first four factors — that consciousness is basically one, that it is the source of our identity, that it is awareness, and that it can manifest on an individual, transcendent as well as at a cosmic level — you must conclude that it should be possible to identify our own consciousness with the consciousness of the whole. And that is, of course, exactly what the great mystics have managed to do, and what each of us can do at least to some degree if we care to put in the necessary effort.

6. ***Consciousness is Joy:*** Joy is the affective essence of consciousness and of all that is.

The ultimate reality is *saccidānanda*.

This sixth aspect of consciousness, that it is one with Joy, is derived from the concept of *saccidānanda*. The idea that the ultimate reality is an inalienable oneness of Existence, Consciousness, and Joy, is one of the greatest masterpieces of Indian thought and for Psychology perhaps more important than Einstein's famous equation of mass and energy is for Physics. It is simply brilliant to realize that essentially being, consciousness and joy is one and the same thing, for, indeed, you cannot have one without the other. Experientially the concept is derived from the fact that the realization of absolute consciousness goes together with absolute joy. On our more humble levels of existence, consciousness and being, the equation of consciousness with joy may, however, not be so obvious. For us the world is divided into a curious mixture of pleasure and pain, and there are not a few who have felt that in the end pain dominates. The problem of pain and suffering is one of the greatest mysteries of life and it is not possible to do full justice to the issue here, but a few points can be made.

One way to understand the contradiction between the *yogic* assertion of all-pervading Joy and the everyday pervasiveness of suffering is to compare joy with temperature. If you need a domestic scale of temperature you can use Celsius or Fahrenheit. Both start at an arbitrary place that happens to be convenient to us, like the temperature at which water freezes. Anything above that is called positive, warm; anything below that, is called negative, cold. With joy, with *ānanda* we do the same thing. Anything that is somehow within our range of liking we call positive, joy; anything outside this narrow range we call negative, suffering. The scientific way of measuring temperature, however, is Kelvin, which starts at absolute zero, and as such has no negative points. In Kelvin, any temperature is positive. Only with such an absolute scale it is possible to work and think effectively and scientifically with temperature. With joy it might be the same thing. For domestic use the usual scales of pleasure and pain with a fairly arbitrary zero point in between are appropriate. But if you want to deal effectively with and think seriously about the basic Joy of Being, you have to start at the absolute zero and take everything beyond that as positive. After all, it is just our human smallness and ignorance that make us look at some things as suffering and some things as joy. They have no absolute meaning and the border between them is much more arbitrary and nebulous than popular sentiment presumes. Anybody who has tried even a little bit of self-mastery, knows that there are many things that in the ordinary, egoic life produce suffering, but that with a little effort can be made interesting, if not positively enjoyable. This is, like so many things, true at the top and at the bottom of human experience. Psychiatrists know for example that most people who have serious psychological problems, at some level or another cling to these problems. There is something, obviously something perverse, in man that likes trouble, and gets addicted to it. At the top end of the human ladder as well, we see that many great mystics have suffered pain with a happy heart. And in between these extremes people do like to put in effort, and enjoy discomfort, for example in sport or during holidays, as part of the game. Essentially it seems to be only our human smallness and our ego that make us dislike pain and feel suffering. When our consciousness increases, our capacity for both joy and suffering increases. In fact, initially one may become more aware of the pain than of the joy inherent in life, just as one becomes aware of the dust in a room only after one starts cleaning the room. But in the end another Joy far beyond pleasure takes over and begins to penetrate every aspect of being.

All spiritual traditions have asserted the possibility of overcoming suffering, but for at least 3000 years there has been a tendency in India to seek the eternal Joy outside the manifestation. The perception of life as an illusion wins from the perception of life as *Brahman*, and the manifestation is seen as Brahmā's veil, *māyā*, rather than as his play, *līlā*. Even the otherwise life-affirming *Gītā* gives as its ultimate goal the release from the cycle of birth and death. According to Sri Aurobindo this is a diminution of the original Vedānta, which did not have as its goal release from birth and death, but immortality. Sri Aurobindo's answer to the problem of pain is not to escape in an absolute of Existence, Consciousness and Bliss beyond manifestation, but to call that Absolute Consciousness and Bliss right down into the manifestation. He sees this as a new possibility, and as part of the next step of our biological evolution, which will move from an embodied mind, *manas*, to an embodied "supermind," *vijñāna*, through a radical transformation of our nature. It may be clear that this change of perspective has major consequences for many areas of psychology, especially for one's ideas of personal growth and motivation.

These are six essential, static and passive qualities of consciousness, related to "being." There are also six dynamic aspects of consciousness, aspects related to "becoming."

DYNAMIC ASPECTS OF CONSCIOUSNESS

Both in the West and in the East, the passive qualities of consciousness have dominated philosophical discourse. It is interesting to ponder why this is so.

A sceptical mind might argue that there is no other reason than that philosophers, *as people*, tend to be idle observers of the world-scene and as such only recognize the passive aspect of consciousness in themselves and around them, while those who get actively engaged in the world, rarely find the time to write philosophy. But there may be more profound experiential reasons as well. In the early stages of *yoga* it is, for example, comparatively easy to develop a pure witness consciousness, "pure" in the sense of a total separation from "nature at work," but it is extremely difficult to develop a pure will. All power corrupts, as the saying goes, and the dynamic will tends to be too mixed up with nature to be distilled into a genuinely free, independent force. *Karma-yoga* is often seen as an early, preparatory stage of *yoga* (for example in the *Yogasūtra* of Patañjali) and work can, no doubt, be used as a preparation for more contemplative aspirations. But to reach perfection in *karma-yoga* is more difficult than to reach perfection in contemplation, as it necessitates a level of transformation of the nature that is not needed in *jñāna* or *bhakti-yoga* where the nature can simply be put aside. In the later stages of *yoga* too, it is easier to identify with the Absolute in its transcendent, witness aspect, than in its dynamic, cosmic action. It is thus not surprising that the Advaita tradition has focused almost exclusively on the passive, witness aspect of consciousness. This works because for a realization of the Infinite it is not needed to achieve a full reunion of *puruṣa* and *prakṛti*. It is sufficient to separate the *puruṣa* from the *prakṛti* and to reach the ultimate Oneness by dismissing *prakṛti* as *māyā*, illusion. The *tāntric* tradition tries to realise the Ultimate the other way around and focuses (almost) exclusively on the *śakti*, energy aspect of conscious-existence. The most ancient Vedic tradition is open to different interpretations but it seems to have acknowledged both sides of consciousness equally. If this is true, its approach should lead to the most complete realization because it is clear that *Brahman* itself does have a dynamic as well as a static aspect. This by itself should be reason enough to value both equally, however difficult this may be to "realize" this in one's personal experience. If Sri Aurobindo's vision of an ongoing evolution of consciousness is correct, then recognition of the dynamic aspect of consciousness will become crucial in the time to come.

7. *Consciousness is Power; Cit is also Cit-Śakti:* Consciousness is not only passive awareness, but also form-giving energy, force.

The first of the dynamic aspects of consciousness is that consciousness is power. Consciousness is not only a passive witness. It does something. On the physical level, it is the consciousness in material things that gives them the habit of form and the tendency to obey certain fixed laws of nature. As you go up the ladder of consciousness, consciousness takes different shapes. Will on all levels is conscious power. On the vital plane, for example, both fear and desire tend to attract what is feared or desired. On the level of the mind, the clear formulation of an idea helps to bring it into existence. Such "conscious" or "subconscious" mental formations, the morphogenetic fields of Sheldrake, neurosis, *mantras*, *saṁskāras* are all complex forms of consciousness that have an active influence on what will manifest in the social and physical world. For us as individuals, the most important form of consciousness as power is our *śraddhā*, the faith arising from the depths of our nature which determines what we will become: *ya śraddhāḥ, ya eva saḥ*, as the *Gītā* says. For the cosmos as a whole it is the consciousness-force of the Divine which creates the worlds, and the Grace of the *śakti* who guides our ways.

8. ***Consciousness is also Biune (Īśvara-Śakti), and Dual (Puruṣa-Prakṛti):*** Consciousness is One, but it can manifest as none, biune, two or even many.

One interesting aspect of consciousness is that consciousness is one, but not only one: it can also manifest as none, biune, two or many. These different aspects of consciousness can lead to radically different experiences of the fundamental nature of reality, experiences that are so strong and convincing that they subsequently can give rise to different philosophies, which are difficult to reconcile for the narrow logical mind, but all of which find expression in the richness of the Indian tradition. Consciousness in the ordinary waking state is largely dual: it has a clearly marked ego as subject and an equally distinct and "real" nature as object. This state and the ideas derived from it are part of the current orthodoxy in modern Western philosophy. As a result, intentionality is widely taken as the main criterion of consciousness. Even Jung, who was otherwise deeply influenced by Indian thought, could not imagine that a state without ego could be anything else than unconscious.[3] At the other extreme we find on the one hand the experience of the utter unreality of everything including the self, which leads to the Buddhist concepts of *anatta* and *śūnya*, and on the other hand the Vedāntic experience of the eternal Self being one with *Brahman*. In between there is the Sāṁkhya realization of the many individual Selves, in whose immutable and unstained

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[3] For a good discussion of the limits to Jung's understanding of the Indian tradition, see Harold Coward, 1985, pp. 73-75.

9. ***Consciousness is Love:*** Love is the essence of all relation; Joy and Love are one; Knowledge and Love are one.

The most beautiful form of consciousness is Love. It is as Love that consciousness sustains the world. But, like almost everything else in human life, love gets easily corrupted till, as desire, it has turned into its very opposite. Yet, in essence Love and Joy are the same thing. Love is the dynamic, the active part of That. Joy is the passive, receptive side. And again this is true on the highest level of absolute *ānanda*, as well as on the very mundane level of a mother with her child or two people "in love" with each other. Love is a simple, unconditional joy in the being of another person. Just as a child comes into being because of the love between his parents, however diminished or perverted that love may be, so this whole wide world would not exist if it was not carried by the Love of the Divine. One could fill volumes with the beautiful texts from the Indian tradition describing on the one hand the Love of God for his devotees, and on the other, the human love for God which is often described as the highest and most profound way of knowing him.

10. ***There are Many Levels and Types of Consciousness:*** There are different types of consciousness, physical, vital, mental and beyond mentality.

These types exist not only "in us" as states of our personal being: they make up the complex evolving worlds we inhabit, as well as the independent, typal worlds. Each of these worlds presents a different relation between *puruṣa* and *prakṛti*.

This is again an aspect of consciousness, which is obvious to all who are even faintly familiar with any occult or mystical tradition, but as we have seen in the introduction, it is at the moment not acknowledged in the given "orthodoxy" in scientific Consciousness Studies which take consciousness as a simple on/off mechanism: either you are conscious or you are not. It may be clear that India's deep and complete understanding of all the different types of consciousness active in man and the myriads of ways in which they interact would revolutionize psychology.

11. *In Time, Consciousness Manifests as an Evolution of Beauty, Truth and Joy:* Consciousness takes form in space and time. The World is not finished; it is a work-in-progress.

For me the most fascinating aspect of consciousness is that in space and time consciousness manifests primarily as a big adventure — as an evolution — in which slowly consciousness evolves, both in the individual and in the world as a whole, till, as Sri Aurobindo says, the consciousness of the Divine will be fully manifest in matter. The Purāṇas contain the story of the ten *avatāra*s, but till recently this seems to have been understood mainly as depicting stages in the progress of the individual. The idea of a collective evolution of consciousness is something that some orthodox Vedāntins might immediately disqualify as absurd on the ground that consciousness is a property or power of the *puruṣa,* which is eternally the same so that there is nothing that can evolve in consciousness except *māyā.* But as we saw in the introduction, the Indian tradition is very rich and *puruṣa* is not the only word that can be translated as consciousness. When Sri Aurobindo talks of the evolution of consciousness, he talks about the evolution of *cit,* which is the very stuff of existence and as such does get into creation and does allow change.

After Darwin's work became known, Sri Aurobindo and a few others realized that the evolution Darwin describes is actually not just an evolution of the biological form, but an evolution of consciousness, and more importantly, that in this evolution, the human being may not be the final stage. Man has all the trappings of a transitional creature somewhere halfway between the worm and the Divine. If you compare the evolution that has taken place so far with the Vedic classification of consciousness in seven layers, then it is clear that the highest step evolution has manifested so far is the embodied mind, *manas* and *buddhi* (sense-mind and intellect). It is tempting to think that the next step of the evolution might be the embodiment of the supra-mental, *vijñānamaya-kośa,* which, as the link-layer between the higher and the lower hemispheres, could enable a divine, Gnostic consciousness in matter. Doing so makes many things fall into place that otherwise are hard to accept. Sri Aurobindo explains, for example, most of human suffering as due to the fact that we are as yet nothing more than "transitional beings." The famous painter Van Gogh says something quite similar. He writes to his brother that we should not blame God for the state of the world: It is only a draft, God has not yet finished his painting! We, human beings, are in process and have to wait and see what God makes out of us.

12. ***Consciousness is a Mystery:*** **One cannot understand God, but one can Love God, Know God, and Become God.**

After all that is said about consciousness, it is still a mystery, and luckily so. It will always remain a mystery. The more we know about it, the deeper the mystery becomes. The final truth cannot be understood with the mind because the mind is only a middle term, one, quite limited form of consciousness. You cannot *understand* God; you can become God. You can very much love God, and to some extent you can know God in yourself and in the world, but you can never make a mental understanding that fully encircles it.

All these are very basic and seemingly simple ideas, but if taken seriously, it may be clear that they have far-reaching consequences for almost all areas of human endeavour, and especially for psychology. They do not contradict science anywhere except in its claims of exclusivity and completeness. Without this understanding of the role of consciousness and the Divine in the world, the world would be dead and meaningless. Science has delivered humanity from the pits of ignorance, superstition and fear, for this we must be grateful, but it would be an absolute disaster if we would allow a materialistic science to rob us of the summits of the spirit!

Of the first point, of the tremendous possibilities that the Indian philosophical framework can offer to the social sciences, I've been able to touch upon only two of its most significant facets, the all pervading *Brahman* and the nature and role of consciousness. The other points I'll indicate even more summarily.

Epistemology and Methods of Subjective Enquiry

Of the many Indian contributions to epistemology I'd like to mention only three that have major theoretical as well as practical implications. The **first** one is derived directly from the Vedic ontology. Starting from the idea that consciousness and being are in essence one, Truth is considered a quality of being, more than an attribute of sentences. With the exception of the amazingly detailed metaphysical and logical debates between the medieval *darśana*s, the cultural stress in India has been on experience, rather than on information.

Popular Hinduism is full of stories in which the genuine wisdom of kings, old women and ignorant girls is successfully pitted against the experientially empty scholarship of learned *paṇḍits*. As we mentioned in the beginning, true knowledge is something you have to own with your whole being, you have to become it: the real knowledge is, as Sri Aurobindo calls it, knowledge by identity. It may be clear that this has major consequences for the role and nature of psychological knowledge and thus for the teaching of psychology, for research in psychology and for psychotherapy. It is not that Western psychology has not realized the difference, for example, between information, assimilated theoretical knowledge and skill, but in the Indian tradition these refinements of the concept of knowledge are not an *ad hoc* addition needed to adjust the theory to the requirements from the field, but something that flows directly and harmoniously from first principles.

The **second** major Indian contribution to epistemology is based on the first one combined with the insight that there are many different types and levels of consciousness present amongst men. The one ultimate Truth is ineffable, or rather "of infinite quality" as the much richer Sanskrit equivalent, *ananta guṇa,* says, but it manifests in the form of many smaller truths that all embody entirely different and often contradictory parts and aspects of the One. In the field of religion this leads to the wonderful concept of the *iṣṭa devatā*, the idea that the one ineffable supreme, can come to his devotees in myriads of forms.[4] In the field of ethics, or truth in action, this idea of multiformity arising from a deep underlying unity, leads to the marvellous concept of the individual *svadharma*, the personal truth of action which is not universal but is meant to guide the individual about what he or she should do in harmony with his or her own *svabhāva* under his or her specific circumstances. Again it may be clear how a deep understanding of the twin concepts of *svadharma* and *svabhāva* would lead to major changes in psychotherapy, education, developmental psychology, business management and even law enforcement.

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[4] It may be noted in passing that the centrality of this idea in Indian thought is a major argument not to consider Hinduism as a single religion in the exclusive Hebraic sense. Unlike Islam and Christianity, Hinduism is not exclusive, and can best be seen as a comprehensive philosophical and cultural framework that can embrace all forms of religion, as long as these constituent religions don't make claims on having found the one and only acceptable form of the Truth. This tolerant, non-exclusive attitude, which is an intrinsic part of the Indian tradition as long as it is known, is in the West only a very recent phenomenon, and the rising world culture can learn much from the way religious tolerance has been practised in India for millennia.

The core of both expressions of this second epistemic point is respect for difference in manifestation, based on a deep awareness of an implicit, underlying unity. Interestingly, this is also the hard-fought-for essence of modern democracy which is defined not only as the rule of the majority, which by itself could be monstrous, but as the rule of the majority combined with a deep respect for the minorities.[5]

The **third** major epistemological contribution of the Indian tradition to psychology is its methodology. In all areas of science it is implicitly understood that the nature of the researcher does play a role. A student of physics or medicine does not only learn the established facts of his subject, or even the right research methods, but in the process of his studies he becomes a physicist or a doctor. But this inner change is not the key issue in his studies. The largest part of the collective progress in the hard sciences comes about through the development of better theory and better instrumentation, which in turn is made possible by the progressive feedback loop between technology and science. In Psychology the nature of the researcher is, however, of paramount importance, as it is in fact the researcher's own human nature, which is the main tool for his enquiry in the nature of consciousness. The Indian tradition has worked this out in a detailed and rigorous manner that has simply no equivalent in the West. The enormous wealth of techniques and processes developed as part of *yoga*, can all be looked upon as ways to improve the efficiency, purity and resolution of the *antaḥkaraṇa*, the inner instrument of knowledge. And, as discussed earlier, it is a perfected inner instrument of knowledge, which is most needed to arrive at a detailed and reliable psychological insight. A full recognition of this fact — which will have to go together with acceptance of psychology as a first person rather than a third-person science — will lead to drastic changes in selection criteria for psychology students, methods of teaching psychology, research methodologies, establishing lines of authority, and so on.

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[5] As Dr. Kapil Kapoor has pointed out (personal contact), the concept of minorities should not be limited to the few major political groupings that are identified as such in Indian politics. Everyone alive on this great and complex earth, whether Christian, Sikh, Muslim, Parsi, brāhmaṇa, *dalit*, artist, teacher, tall, small, green-eyed or whatever, is simultaneously a member of several overlapping minorities *and at the same time* a member of the single joint family of humanity. The point is the respect for individual differences which modernity has such an amazing difficulty with.

Theories of the Self and the Personality

When we finally come to the content of psychology, the most important contribution made by the Indian tradition is no doubt its concept of the Self as the *ātman*, the *puruṣa*, and its relation on the one side to the ego, *ahaṁkāra*, and on the other to the cosmic and transcendent realities of *prakṛti*, and *Brahman*. Together with this, one has to consider its fine understanding of the different types of consciousness (the *koṣa*s), the centres of consciousness in the human body (the *cakra*s), the varieties of mind like *vijñāna, buddhi, manas*, and the way they relate to the *citta*.

One of Sri Aurobindo's main contributions in this field is his distinction between the immutable Self, the *ātman*, above, and the evolving soul, the *caitya puruṣa*, experienced as located behind the heart which he calls "the psychic being." Another major contribution is his detailed descriptions of the different types of consciousness, right from the consciousness of the body to the higher ranges of mind, and especially the distinction he makes between the Overmind and the Supermind (e.g., 1972a: 271-89). Of major practical importance is also his understanding of how the vertical Vedic system of different planes of consciousness interacts with a concentric system consisting of the outer nature, the inner nature and the *puruṣa* on each of these different levels.

Special Areas of Psychological Theory

There are many specialized areas of psychology in which the Indian tradition can make major contributions. One can, for example, think of the detailed study of aesthetic pleasure and emotions; cognition, perception and awareness; personality types (*guṇa*s, *varṇa*s); life-cycle studies (*āśrama*s), etc. But the most interesting for modern psychology is perhaps the insight the Indian tradition can give to developmental psychology. In this field, the contributions from the Indian and the modern Western tradition are clearly complementary. What the Indian tradition can add is what it knows about the soul. While the debate in modern Europe has been largely between nature and nurture, genetics and upbringing, the Indian tradition brings in a third element, the soul. In the Indian tradition our biological endowments, what we would now call the genetic foundations of the personality, are taken as part of *prakṛti* and as such as part of the circumstances of life. The real "I" is the eternal soul, and the debate is first about what the soul does to create the environment it ends up living in, and second how this soul subsequently should deal with that "environment" (which includes the peculiarities of its own character). Though we do get here into an area about which the different religions have strong, sometimes contradictory and often dogmatically defended opinions, this area is too important to be ignored by psychology. Personally I'm convinced that the Indian idea of souls that grow slowly over many lifetimes fits well with experience and can explain much about the huge differences between people and especially young children that is very hard to make sense of otherwise. Luckily, most of the practical consequences for upbringing and education remain the same whether life is seen as a one-time affair for the individual soul or not. The main point, on which the major religions all agree, is that there *is* something like a soul and that this individual soul should be helped to grow and flourish. The Indian tradition has an incomparable wealth of material on the details of this process of growth and development.

Applied Psychology: Pathways for Change

This is the area where the Indian tradition has probably had the greatest influence on the evolving global civilization, not only in the sub-culture but also in mainstream Psychotherapy and Human Resource Development. The latter is probably due to the fact that these fields of applied psychology are much less theory-driven than academic psychology-proper and as such more open to new ideas, irrespective of whether they fit in what is traditionally considered scientific or not, as long as they can be shown to work. This pragmatic focus is an advantage as well as a disadvantage. In Psychology, meditation and *yoga* are widely recommended as "relaxation techniques" without the slightest hint of their deeper spiritual meaning and cultural context, which is a rather tragical travesty of their original intent. I suppose this has to be accepted as a beginning but we must hope that a more broad-based introduction of Indian psychology in academia will lead to a better understanding of what these techniques purport and how they are related to a complex and intricate web of meaning and purpose.

In this area too, Sri Aurobindo has made a number of significant contributions. The most important is perhaps that he realized that *yoga* is nothing but practical psychology (1972b), and that he worked out in great detail how the basic natural processes at work in our psychological nature can be used to uplift and transform our existence. For Sri Aurobindo the aim of *yoga* is not just liberation, but also transformation. In harmony with his vision of an ongoing evolution of consciousness, he sees *yoga* as involving a triple transformation, first a perfecting of the outer and inner nature as an instrument in service of the soul, then a bringing of more and more of one's consciousness under influence of the higher ranges of the mind, and finally a supramental transformation which he considers to be the inevitable next step in the evolutionary process (1972a: 889 onwards).

Conclusion

The Indian contribution to Psychology can be summarized most effectively with one of the oldest and most recited verses of the whole tradition, the *śloka* from the *Bṛhadāraṇyaka*, which describes our eternal yearning, the quest to lead us:

> from the non-being to true being,
> from the darkness to the Light,
> from death to Immortality.

References

Aurobindo, Sri, 1972a, *The Life Divine*, Sri Aurobindo Birth Centenary Library, vol. 18 and 19, Pondicherry: Sri Aurobindo Ashram.

———, 1972b, *The Synthesis of Yoga*, Sri Aurobindo Birth Centenary Library, vol. 20 and 21, Pondicherry: Sri Aurobindo Ashram.

———, 1996, *The Upaniṣads*, Pondicherry: Sri Aurobindo Ashram.

Coward, Harold (1985), *Jung and Eastern Thought*, New York: State University of New York Press.

Descartes, René, 1931, *The Philosophical Works of Descartes*, trs. Elizabeth S. Haldane and G.R.T. Ross, New York, NY: Dover Publications.

Phillips, Stephen H., 1997, *Classical Indian Metaphysics*, New Delhi, Motilal Banarsidass.

Velmans, M., 1991, *Is Human Information Processing Conscious*, Behavioral and Brain Sciences, vol. 14, pp. 651-726.

12

Indian Political Thought

Ashok S. Chousalkar

INDIAN political thought is one of the oldest political traditions in the world. It originated in sixth century BC and the last work on it was written by Malhar Ramrao Chitnis in 1811. This important tradition continued to develop through numerous books and the commentaries written by a large number of experts. The ancient Indians dealt with almost all important issues in Political Science. Hence, it was rightly pointed out by Dr. Brown that apart from the dominant Western political tradition, ancient Indian political tradition was the only other important political tradition in the world (Brown, 1954: 265-72). In its originality, continuity and creativity, it is an independent political tradition but it is often neglected. This long tradition came to an end with the advent of the British rule in India.

I

There occurred a rupture between the given Indian political tradition and the modern Indian political tradition as the modern Indians declared that modern knowledge of science and social sciences — and not of the traditional systems of Nyāya, Vyākaraṇa and Sāṁkhya — was power and the Indians should strive to secure it.[1] The epistemological void created due to this rupture was filled by the Orientalists who tried to understand the Oriental civilization through their civilizational perspective. Many of these scholars were of the opinion that the Asians did not know the concept of freedom and that most of the Oriental societies were ruled by despots. The concept of Oriental despotism became a part of historical mythology of the Occident and such great thinkers like Hegel and Marx[2] also subscribed to it (Marx and Engels, 1979: 29, 70, 75 & 239). The imperialists used this concept to justify establishment of dictatorial governments in the colonies. Little did these scholars realize that West's political tradition before the French revolution of 1789 was that of despotism and authoritarianism.

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[1] M. Brown, 1954, "Indian and Western Realism," pp. 265-72. *Indian Journal of Political Science*, vol. 15. Balshastri, Jambhekar, *Balshastri Jambhekar Yanche Charitra*, vol. II, Lekh, ed. G.G. Jambhekar, Lokshikshan, Pune, 1950, pp. 3-9.

Balshastri Jambhekar was born in 1814 and at the age of 20 he started Marāṭhī journal *Darpan*. He was one of the pioneers of renaissance in western India.

The historians of political thought maintained that the Indians did not have anything like political thought to their credit. For example, Willoughby wrote: "to early Eastern mind, the fact that a thing existed was sufficient in itself to show its right to be. Thus was effectively excluded all possibility of enquiries as to the relative perfection and justification for existence of 'de facto' social and political institutions" (Willoughby, 14). Prof. A.B. Keith held that the subtle and profound spirit of India found its fullest expression in the absolute idealism of Śaṅkara and the sceptical nihilism of Nāgārjuna but it was not conversant with the concept of man as a political organism.[3] He did not approve of any comparison between political ideas of Plato and Kauṭilya.

The Orientalist historiography of Indian political thought evoked different responses. The nationalist response was led by Dr. K.P. Jayaswal who in his seminal book *Hindu Polity* questioned the cheap wisdom of a few people who downgraded the Orient and held that the constitutional development was not a monopoly of any race in the world and political greatness was not inherent in any particular race (Jayaswal: 352-53). He argued that the constitutional experiments made by ancient Hindus were not equalled by any other race in the world. Jayaswal claimed that in ancient India there existed democratic and republican institutions and the spirit of freedom and inquiry was encouraged by these states. Therefore, he dedicated his book to the republican heroes: Vṛṣṇis, Kathās, Vaiśālas and Śākyas who announced philosophies of freedom from *deva*s, death, cruelty and caste (Jayaswal: 1). Obviously, Jayaswal was referring to Kṛṣṇa, *Kaṭhopaniṣad*, Mahāvīra and

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[2] Most of the Western scholars at that time believed in the concept of Asiatic mode of production and oriental despotism. Hegel was of the opinion that the East had not developed masculine spirit that enabled the West to build strong state structure, as the spirit of the East was feminine, hence the weak state structures in the East! J.W.F. Hegel, *Philosophy of History*, Dover, Newyork, 1956, pp. 160-61.

[3] A.B. Keith, "Foreword" to Prof. Beni Prasad's book *Theory of Government in Ancient India* (2nd edn.), Central Book Depot, Allahabad, 1968, p. 2. This second revised edition included an erudite introduction by Prof. A.D. Pant on the nature and origin of the *Arthaśāstra* tradition in ancient India, pp. 12-51.

Gautam Buddha. The main purpose of Jayaswal's researches was to question the basic assumptions of the Orientalists and to examine the relevance of ancient Indian political experiments in the light of India's search for establishment of new polity after 1920. But some of the findings of Jayaswal were questioned by many historians because they argued that his findings were not based on sound evidences (Ghoshal, 1966: 214-15).

Jayaswal's attempt to retrieve ancient Indian political thought failed because he tried to show that all progressive, democratic and republican institutions existed in India. The second attempt of retrieval was made by the Bombay school of political scientists such as Pratap Giri, Gheewala and Anjaria as they wanted to assess relevance and utility of ancient Indian political tradition in the formation of new states in India. After closely examining the basic premises of Indian political tradition, they came to the conclusion that since ancient Indian political tradition was essentially despotic as it encouraged caste discrimination and social inequality its retrieval was not desirable.[4] Sri Aurobindo and Anand Coomaraswami tried to argue that the ancient Indians had forged a specific model of state building which avoided centralization of power and dictatorship of majority inherent in the parliamentary model of democracy (Aurobindo, 1972: 335). Mahatma Gandhi and Vinoba Bhave tried to put forward an alternative model of state and politics.[5] In his book *Spirit and Form of Indian Polity* Sri Aurobindo laid emphasis on the spirit of unity, communal self-determination and local autonomy in the Indian tradition (Aurobindo: 368-69). But these attempts of retrieval failed because they sought to see every Western idea and institution in ancient India as well though both the traditions had developed in different milieu. Secondly, the problem of organization of a big country like India which was developed on the basis of Western model of constitutional philosophy was complex as the mechanical imposition of old institutes was not possible. There was no organic link between old and modern Indian political institutions.

II

Political Science in India was known by different names such as *Daṇḍanīti*,

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[4] R. Pratap Giri, *The Problem of the Indian Polity* (2nd edn.), Gian Publishing House, Delhi, 1985, p. 280. See also A. Chousalkar, "Nature of State in Ancient India: Modern Indian Perspective," *Journal of Shivaji University*, vol. 34, 1999, pp. 9-20.

[5] Cf. M.K. Gandhi, 1990, *Hind Swaraj or Indian Home Rule*, Nav Jeevan, Ahmedabad Vinoba Bhave, 1991, *Lokniti including Swarajya śāstra*, Wardha: Parandham Prakashan.

Arthaśāstra, Rājaśāstra, Kṣatra Vidyā, Rājadharma, Nītiśāstra and *Rājanīti*. In the early phase of its development, the names *Daṇḍanīti* and *Arthaśāstra* were popular but after fifth century CE the name *Nīti* or *Nītiśāstra* became popular and later writers like Kāmandaka, Caṇḍeśvara, Somadeva Sūri, Lakṣmīdhara and Śukra used the title Nīti for their books on politics. The *Nītiśāstras* were continuously reproduced in India even during the Muslim rule; but they were hardly influenced by the Muslim political ideas and institutions.

Political thought in India was developed by three different traditions — the *arthaśāstra* tradition, the *dharmaśāstra* tradition and the Buddhist tradition. The *arthaśāstra* tradition was developed by different *arthaśāstra* teachers who carried out inductive investigation in the phenomenon of the state and constructed the science of politics on the basis of experience of the statesmen of the *janapada* states of sixth century BC. Most of the teachers were influenced by Lokāyata philosophy and in the early Buddhist literature the words *lokāyata* and *arthaśāstra* were used interchangeably (Rajawade, 1918: 104). The *dharmaśāstra* school owed its origin to the *dharmasūtras*. The *dharmaśāstras* are also called *smṛtis* and they were written to regulate the social duties of the people in the light of *varṇa* ideology. Indians had written a very large body of *dharmaśāstras* and Prof. P.V. Kane held that there were more than 5000 *dharmaśāstra* texts in India (Kane, 1980: 105-06). Initially, there were differences of opinion or even hostility between the *arthaśāstra* and *dharmaśāstra* schools of thought but the differences were narrowed down when the *arthaśāstra* school accepted the authority of the Vedas and the *varṇa* system. Gradually, the *arthaśāstra* ideas were incorporated in the *dharmaśāstras* as *rājadharma*. The third school of thought was the Buddhist school which tried to interpret Political Science in the light of morality and righteousness. This school of thought was not properly developed but its basic ideas were appropriated in the Śānti-Parva of *Mahābhārata*. Though Indians continued to reproduce the literature on Politics after sixth century CE, the originality disappeared from most branches of learning in ancient India and the science of politics was no exception (Altekar, 1972: 23).

Political Science or *rājanīti* in India dealt with many important issues on politics. Indians understood the importance of the science, hence the *Mahābhārata* maintained that lord Brahmā first created a book on Politics and then only he decided to create the institute of state because the state could not be ruled without the proper guidance of the science of Politics (*Mbh.*, 12.59.29.79). In the divine book of Politics mentioned by the great epic, the following subjects were included:

1. Four sciences and training of the king.
2. Nature and aim of the state, *vyasana*s of the state.
3. The power, position and duties of the king.
4. The Council of Ministers, composition, duties.
5. Law and judicial administration.
6. Administration of different departments and the regions of the state.
7. Inter-State relations and *maṇḍala* theory.
8. The Republics in ancient India.
9. Three goals of life and their comparative importance.

The above-mentioned list of the topics covers a wide area of the discipline and it is to be noted that the ancient Indian contributions in the fields of Public Administration and Inter-State relations are noteworthy because no other political tradition in the ancient world excelled the Indians in this respect. Indian methodology of science developed complex philosophical systems as well as the positive sciences like *Arthaśāstra, Āyurveda* and *Kāvyaśāstra*. These sciences were developed, refined and reproduced by large number of commentaries in the form of *nibandha*s, *ṭīkā*s, *vṛtti*s, *ālocanā*s and *prakāśa*. These commentaries were written to explain the exact meanings of the terms used in the text and to define the concepts used in the light of the then prevailing social and political situation. This was the traditional method of assessing the relevance of the seminal books of the past.

In this paper I shall try to discuss ancient Indian perspective and relevance of three important themes in political theory — (1) the methodology of the science of politics; (2) the bases of the authority of the state; and (3) the end and limits of politics.

III

Indian political thought developed along with other philosophical systems in India. It had a close relationship with philosophies like Sāṁkhya, Nyāya, Lokāyata and Pūrva-Mīmāṁsā. As a result, *Arthaśāstra* teachers borrowed many of their methodological tools from these systems. Initially, the *Arthaśāstra* was closely identified with the Lokāyata philosophy and in the Buddhist literature, they were blamed for their amoral teachings (Pant, 1968: 38-39). According to Kauṭilya, Śukra and Bṛhaspati were the originators of the science of politics and they argued that the human reason was more important than the scriptural authority (*Mbh.*, 12.140). Kauṭilya in his *Arthaśāstra* said that philosophy meant the study of philosophies of Sāṁkhya, Yoga and Lokāyata (Kauṭilya *Arth.*, 1-2-10). According to Chattopadhyay, Yoga meant Nyāya philosophy (Chattopadhyaya, 1971: 491-504). All these philosophies were known for their rationalism and the empirical bias. The *arthaśāstra* was called *dṛṣṭārtha smṛti* because it sought to interpret the world which was visible to senses. The duties of the king were also called *dṛṣṭārtha* because their effects were visible and friendly (*Manu-Smṛti*, VII.1). The science was developed with the help of *itihāsa-purāṇa* tradition which was called the fifth Veda. It consisted of old traditions of the kings and kingdoms. The second source was the actual experience of emergence and working of state (Kosambi, 1975: 120.21). It seems that most of the concepts and terms of the science were finalized during this phase only.

What was the methodology of *Arthaśāstra*? The methodology of the composition of the scholarly text was developed by fifth century BC and Pāṇini refers to it. *Āṇvikṣikī* and *tantra-yukti* were two tools used by the Indians.

The word *āṇvikṣikī* is often used in the Indian philosophical tradition. It is derived from root *ikṣ* which means to probe. The scientific probe or investigation was the purpose of *āṇvikṣikī*. In the *Arthaśāstra* of Kauṭilya, *āṇvikṣikī* meant philosophies of Saṁkhya, Yoga and Lokāyata (*Arth.*, 1). The *Mahābhārata* termed it as logic (12.173.45). It essentially meant the science of processes and methods of reasoned and systematic knowledge of objects. It tried to examine epistemological and ethical problems. Kauṭilya identified this science with philosophies of Sāṁkhya, Yoga and Lokāyata which were very strong in logic. *Āṇvikṣikī* dealt with the sources of knowledge. Ancient Indians discussed different sources of knowledge but four sources were considered important. The four sources were direct evidence of senses, (*pratyakṣa*) inference, (*anumāna*) knowledge derived from the holy scriptures, historical traditions of the people and the practices of the wise and good people (*śabda*) and reasoning or method of arriving at conclusions as a result of series of reasoning (*yukti*). The *Arthaśāstra* was called *dṛṣṭārtha smṛti* and it was pointed out by Ādi Śaṅkara that for the *Arthaśāstra*, application of two sources, direct evidence of senses and reasoning, was sufficient (Daftari, 1976: 6-7).

Āṇvikṣikī not only dealt with the epistemological problems but it dealt with the goals of worldly course of life also. The philosophy of Lokāyata laid emphasis on direct evidences of senses and argued that it was the duty of the state to develop sources of *artha* — agriculture, trade and cattle breeding so that the life of man could be made happy and sufferings of the slaves and laboures ameliorated. It emphasized importance of well-ordered and well-organized state to overcome logic of fishes and to ensure *yoga-kṣema* of the people (Rajawade: 156-57). Philosophy of Sāṁkhya also laid emphasis on the use of direct evidences of senses but it laid more emphasis on securing of true knowledge of reality. It was their contention that everyone should perform his duties in the spirit of detachment. The performance of the duty was a part of our existence and it was better to perform it with full knowledge of its consequences and without aspiring for its rewards. The Sāṁkhyas held that life of contemplation was more desirable than the life of Kingship. In *Mahābhārata*, Sāṁkhya philosophy was often used to resolve dilemma of action (Ruben, 1956: 174-89).

The second method of investigation was *tantra-yukti*. Kauṭilya in the last chapter of his *Arthaśāstra* maintained that *arthaśāstra* or science of politics was written with the help of 32 devices of science or *tantra-yukti*. Caraka and Suśruta also mentioned it and the former added three more devices to the list of 32. The *mīmāṁsaka*s with their flair for analysis had indicated the principles of literary composition. Of these they had singled out *saṅgati* or internal consistency. These devices were referred to by Pāṇini in his *Aṣṭādhyāyī* (Agarwal 1963: 309-10). Knowledge of these devices or *tantra* was necessary to refute the statements of hostile critics and to establish one's own viewpoint. These *tantra*s were widely used in the philosophies of Pūrva-Mīmāṁsā and Nyāya-Vaiśeṣika. It was said that these maxims were like the sun to a group of lotuses or like a lamp to the house for illustration or expression of the subject of discourse (Vidyabhusan 1979: 389-90). Dasgupta pointed out that these devices were maxims for interpretation of textual topics. The basic difference between *āṇvikṣikī* and *tantra-yukti* was that the former referred to laws of thought and the latter to the technical mode of expression (Dasgupta, 1975: 390).

Of these 32 devices, some were ways of interpreting ideas, others were ways of interpreting the arrangement and manner of textual words and their inter-connections. Some devices were used to establish one's own viewpoint, and others were methods of expounding the subject (Shah 1992: 159-60). Following is the list of 32 devices.

1. ***Adhikaraṇa*** — Treatment of matter with the purview of the scope of work. It deals with the topic of subject. Kauṭilya illustrates this with example. "This science of politics is composed mostly by bringing

together teachings of as many teachers as have been composed by ancient teachers for the acquisition and preservation of realm."

2. *Vidhāna* — Statement of content. It is a special enumeration of content. For example, "Enumeration of science, association of elders, control over the senses, appointment of ministers and so on."
3. *Yoga* — Arrangement of sentence by taking into consideration meaning and interrelationship between different words. It means that the verb at a distant part of the sentence may be joined with its relevant case in another part of sentence. For example, "The people of four *varṇa*s and four *āśrama*s."
4. *Padārtha* — Meaning of the inflected world. According to Dasgupta, "when a word having two or more senses is used, that meaning alone has to be accepted which suits the previous and later contexts. Thus, when it is said in the medical text that now we shall describe the Veda then only *Āyurveda* is meant and not *Ṛgveda* or *Yajurveda*. Kauṭilya gives an example of word *mūlāhāra*. "He who consumes in unjust ways the property inherited from father and grandfather is called *mūlāhāra*."
5. *Hetvārtha* — A reason for proving a thing is reason for establishing a thing. Here the purpose of reason is to prove an assertion. Many times, it illustrates the condition of visible things by invisible things. For example, "*dharma* and *kāma* (for their successful consummation) depend on *artha*."
6. *Uddeśa* — Mentioning a subject in brief. It stands for mentioning the subject without going into details. For example, "control over senses is motivated by training in sciences."
7. *Nirdeśa* — A detailed statement is explanation. It is a method of describing the subject in detail. For example, Kauṭilya's description of the control over the senses (15.1.17-18) and (1.6.2).
8. *Upadeśa* — Means advice. One should behave in this manner is advice. It means giving general instruction which has exceptions. For example, "he should enjoy *kāma* without contravening his *dharma* and *artha*, he should not deprive himself of pleasures."
9. *Apadeśa* — Giving reference to somebody else's viewpoint. For example, Manu asks the King to appoint 13 ministers. Bṛhaspati asks the King to appoint 16, Uśanasa 20, but Kauṭilya says that the number should be according to the need of the state.

10. *Atideśa* — It stands for application. It is the analogy by which a present difficulty is solved in the way in which the past difficulty was solved. Old rules are applied in new situations. For example, non-payment of gifts is explained by non-payment of debts. The rules that govern the regulations regarding non-payment of debts are also applied to the rules of non-payment of gifts that are agreed upon. Since a medicine has cured Devadatta it would cure Yajñadatta as well.

11. *Pradeśa* — means indication. Setting forth a thing with what is going to be said in future. It is anticipating future event from present indication. For example, "the king should overcome it by means of *sāma, dāma, bheda* and *daṇḍa*, as we shall explain in the section on trouble."

12. *Upamāna* — means analogy. Setting forth an unknown thing with a known thing. For example, he should, like a father, show favours to those whose exemptions have been ceased.

13. *Arthāpatti* — means implication. That, which though not stated, as a matter of course is implication. Thus that which is understood by implication, though not mentioned is *arthāpatti*. When a man says, "he shall eat rice," it is understood that he is hungry and not thirsty. For example, one conversant with the ways of the world should resort to a king endowed with personal excellences and excellences of material constraints through such men that are dear and beneficial to the king. Implication is that he should not approach the king through men who are not dear and beneficial to the king. In Nyāya philosophy, *arthāpatti* is considered as a source of knowledge. It is understood as a source of knowledge because it consists in the supposition of some unperceived fact in order to explain a given fact, when a given or unperceived fact cannot be explained without some other fact even though we do not perceive it.

14. *Saṁśaya* — A thing with reasons on both sides is doubt. When the statement of a reason is equally applicable to two kinds of circumstances, it is called doubt. Doubt may be a case of false knowledge, its uncertainty consists in wavering state of mind. It is a starting point of logical investigation. For example, "should one march against a king with impoverished or greedy subjects or a king with rebellious subjects!"

15. *Prasaṅga* — A thing common to another subject in similar situation is called *prasaṅga*. By virtue of it an allusion is made to things repeatedly described in another chapter. For example, "in a place assigned to him for agricultural work and so on, exactly as before."
16. *Viparyaya* — Contrary corollary. Setting forth a thing with the help of the opposite is contrary (corollary). The inference of a reverse statement from a positive statement is called corollary. Thus from a negative or a positive statement, its contrary is asserted. For instance, "the opposite, as that of one displeased."
17. *Vākya Śeṣa* — That by which a sentence is completed is completion of statement. For instance, there is a loss of all activity on the part of the king, as of a bird with clipped wings. There, "of the bird" is the completion of statement.
18. *Anumati* — Stands for agreement. The statement of another, not contradicted is agreement. When the opinion of other person is stated in approval and is not refuted, it is agreement. For example, Kauṭilya quotes the opinion of Uśanasa.
19. *Vyākhyāna* — The description of speciality is emphasizing. One important factor is emphasized by highlighting its important aspects. Kauṭilya gives example of *gaṇasaṁgha* to emphasize the fact that gambling was the most destructive of vices.
20. *Nirvacana* — is derivation. Deriving the meaning of a word through its components is derivation. For example, "It throws a person from his good hence it is called *vyasana*."
21. *Nidarśana* — Exemplifying by means of example is illustration. For example, when the king decides to go to war with the stronger, he engages as it were in a fight on foot with elephant. It shows fruitlessness of such a fight.
22. *Apavarga* — is exception. Taking away from a rule of universal application is exception. It allows exceptions to general principles. For example, "He should always station alien troops in close proximity to himself except in case of fear of rising in interior."
23. **Sva-Saṁjñā** — A word not agreed by others, is one's own technical term. The technical words are used in a special way, not used by others. For example, "The would be conqueror is its first constituent, one immediately next to his territory is second etc."

24. *Pūrva Pakṣa* — A *prima facie* view. It is the statement to be refuted. For example, "A calamity befalling the king and the ministers, the calamity befalling the minister is more serious."
25. *Uttara Pakṣa* — a statement giving a final view. It is expounded by refuting *pūrva pakṣa*. For example, "Being a dependent on him, for, the king is in the place of head."
26. *Ekānta* — What is applicable everywhere is universal and invariable rule. It is applicable in all circumstances. For example, "therefore, he should, himself, be energetically active."
27. *Anāgata Vekṣaṇa* — This will be stated afterwards, is reference to future statement.
28. *Atikrānta Vekṣaṇa* — This has been stated before, is a reference to past statement.
29. *Niyoga* — This and no other way is restriction. Here the advice is to be emphatically given. For example, he should instruct him in what conduces to spiritual and material good not in what is spiritually and materially harmful.
30. *Vikalpa* — means option. Either in this way or in that way is option. It is a method of giving alternative directions.
31. *Samuccaya* — means combination. In this way or in that way is combination. An attempt is made here to bring together two or more things which are mutually beneficial as having equal value. "Begotten by oneself, the son becomes heir to father and brothers."
32. *Uhya* — The doing of what is not expressly stated is what is understood. The purpose of this device is to acquire right knowledge by the combined application of number of reasonings. It means the things apparent from the context should be understood. For example, "the experts shall fix revocation in a way that neither the donor nor the donee is injured."

The purpose of *tantra-yukti* was to develop the universal rules regarding the scientific writings.

Kauṭilya said that his predecessors discussed the comparative importance of *āṇvikṣikī* (philosophy), *trayī* (theology), *vārttā* (economics) and *daṇḍanīti* (politics) were the four sciences. For example, Manu held that there were only three sciences as philosophy was a part of theology. Bṛhaspati said that there were only two sciences and Śukra said that *daṇḍanīti* was the only science, as with politics were bound up undertakings connected to all sciences. But Kauṭilya said that the study of all four sciences was important. The study of philosophy was important because it gave stability to mind at the time of adversity and prosperity and trained it in achieving excellence in thought, speech and action. Hence, it was a lamp that threw light on all sciences. It was a device to achieve success in all activities and it was a basis of *dharma* and righteousness (*Artha.*, 1.2. 1-12). He held that study of politics was important because the use of *daṇḍa* when rooted in self-discipline ensured *yoga-kṣema* of the people (*Artha.*, 1.5.1).

The study of four sciences should be carried out in relation to three goals of life — *dharma*, *artha* and *kāma*. These four sciences were interrelated and their combined study enabled a person to pursue three ends of life properly.

Thus, we can conclude from the above discussion that the *arthaśāstra* tradition developed sophisticated methodology to study the science of politics. The goal of *arthaśāstra* was establishment of well-organized and well-ordered society which would end anarchy and ensure the acquisition and enjoyment of sources of livelihood. Hence, Kauṭilya concluded the *Arthaśāstra* saying that, "This science, expounded with these devices of science, has been composed for the acquisition and protection of the world and the next. This science brings into being, *dharma*, *artha*, *kāma* and destroys *adharma*, *anartha* and hatred." (*Artha*, 15.71-72)

IV

The second important aspect of Indian political thought was constitution of political authority. There were different theories of origin of kingship in ancient India and in the Vedic literature and the myth of divine creation was the most dominant (Ghoshal: 1-2). But by the first century CE, the *Arthaśāstra-Smṛti* traditions came together to expound quasi-divine, quasi-contractual origin of kingship.

In ancient Greece, there were two viewpoints about the origin of authority. The first school was of the opinion that *physis* or nature was the source of authority and other school was of the opinion that *nomos* or conventions of the people based on contract formed the basis of authority. In ancient India also, we had two traditions — the Vedic tradition of the myth of cosmic *puruṣa* and the tradition of social contract.

In the Vedic literature, especially in the *Puruṣa Sūkta* of the *Ṛgveda*, the origin of social order was discussed in the form of the primitive man when he was sacrificed by gods. Four castes formed the respective limbs of the primitive man (*Ṛgveda*, 10-90). It implied that the society was not limited by political or geographical boundaries but it was coextensive with human race. The society was a divine institution owing its origin to a divine agency. In this hymn was emphasized the universality of *puruṣa* and his function as the cosmic sacrifice. In this way the ritual sacrifice performed on earth by a priestly class eventually was translated into terms of cosmological significance by a process of identifying microcosmic, with macrocosmic elements. This entire cosmic world was held together by *ṛta* an ordering principle. It was believed that the concept of *dharma* originated from *ṛta*. *Ṛta* was based on truth (Joshi, 1996: 10-11).

It was in the *Bṛhadāraṇyaka* Upaniṣad that a close relationship between the *varṇa* system, the concept of *dharma* and political authority was established. The Upaniṣad conceived four-fold social order in the form of *puruṣa*. Initially, there was only one *varṇa*, but it could not sustain itself as it had no energy to do the entire work. Hence, the second *varṇa* was created. Due to this reason only, two more *varṇa*s were created. But four *varṇa*s failed to do all the work, hence, *dharma* was created. *Dharma* was a king of kings and with the help of it, even a weak person could rule over a strong person. The Upaniṣad pointed out that *dharma* was based on truth (*Bṛhadāraṇyaka Upaniṣad*, 1.4 11-14). Here the Upaniṣad sought to expound three principles. First, the society was created on the basis of division of labour and growing needs of the society. Secondly, the concept of *dharma* which was based on truth was created to regulate human behaviour and thirdly, *dharma* assumed the role of political authority to control the people.

The Vedic concept of authority was rooted in the cosmic order. It was a microcosm embedded in the cosmos and sustained by it. The relationship between the two was regulated by the rituals and various sacrifices (Beri *et al.*, 1977: 15-16). It was believed that these sacrifices ensured proper functioning of the world and human society.

The *Arthaśāstra-Smṛti* tradition held that contract or *Samaya* was the basis of authority. We could trace the roots of the contract to Vedic period (Ghoshal: 28-29). There is no other concept in India which was continuously and constantly applied in social philosophy than social contract. In the Buddhist literature, there was discussion on the contractual origin of Kingship (*Dīgha*

Nikāya III, pp. 84-95). The *Mahābhārata* had two versions of social contract which discussed quasi-divine, quasi-contractual nature of origin of kingship (*Mbh.*, 59 and 67). The version in chapter 68 represents the older version which is even referred to by the *Arthaśāstra* of Kauṭilya (*Artha.*, 1.13 - 4-13). This version maintained that the institution of the state was created to overcome the logic of fishes and to establish order in the society. The people gave support including taxes to divinely appointed king Manu in lieu of protection he offered to them. Thus, there was a close relation between taxation and protection and all along it was maintained that the tax was the salary of the king and the king was a servant of the people.[6] In the *Arthaśāstra-Smṛti* tradition, the technical word *Samaya* was used to denote contract. According to Dr. K.L. Daftari, in the *Āpastamba-Sūtra*, *Samaya* was considered as the source of *dharma* and it meant contract arrived at by a large number of people on the basis of unanimity or majority (Daftari: 30-31).

It was believed that political authority was based on social contract and ultimately the authority of the king was rooted in the consent of the people. The *smṛtis* talked about Śaṅkha-Likhita Nyāya or the logic of Śaṅkha-Likhita. This logic was based on the story of two brothers narrated in the *Mahābhārata* (12.23). Śaṅkha and Likhita were brothers, living in their separate houses on the banks of Bahuda river. One day Likhita plucked off some of the fruits from Śaṅkha's garden without taking his permission. Śaṅkha reprimanded him. Likhita accepted his guilt and requested Śaṅkha to punish him. But Śaṅkha told him that he had no authority to punish Likhita as it was a prerogative of the king to punish him. Likhita went to king and requested him to punish him for the crime of theft. Reluctantly, the king ordered to cut the hands of Likhita. Likhita went to river to take bath. After the bath he found his hands restored. His brother Śaṅkha said that he had restored his hands with the help of power of his penance. He held that it was necessary for all human beings to obey the orders of the king. Thus, Śaṅkha-Likhita Nyāya became an important aspect of *Arthaśāstra-Smṛti* tradition.

The *Mahābhārata* maintained that the contract was the basis of society because it was ultimately beneficial to all. According to the Epic, sometimes, the mighty people thought that this *dharma* was established by the weak but they thought so till they discovered their own weakness. There could not be any in the world who was absolutely powerful or absolutely happy. Whatever a person desired to happen to himself, he should desire to happen to others. That you should not deprive others of what belonged to them was eternal *dharma*. The law of *dharma* had been made for the maintenance of worldly course of action (*Mbh.*, 12. 252). According to Prof. Rege, the principle was that one should pursue his interest consistent with equal freedom to others to pursue their particular interests. In the absence of such an agreement or contract, which was honoured by all or the most members of society, social co-existence would be impossible (Rage, 1985: 11).

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[6] The taxes paid by the subjects to the king was a salary *vetana* paid to him, was quite a popular idea in the *Smṛti* literature from the days of *Dharmasūtras* to eighteenth-century commentaries on the *Dharmaśāstras*. For example, Mitra Mishra in seventeenth century asked the king to pay the damages if he had not fulfilled his obligation to protect the property of the subjects, K.V.R. Aiyangar, *Rajadharma*, Adyar, 1941, p. 107.

The society based on contract was a politically organized society with its units and parts clearly defined. The *Samaya* or contract was the basis of organization of these units and they formed their own autonomous councils to decide their affairs. Thus, we had councils of clans, villages, *śreṇī*s, *puga*s, castes and other commercially engaged communities which defined their rules and regulations on the basis of contract. This included some settled communities like village and town as well as associations which had been formed for specific purposes by individuals coming together that entered into some sort of agreement. It was believed that these agreements were formed on some original contract among their founders. The king was directed to ensure that such *Samaya* was honoured in the respective communities and associations. The basic equality of members was recognised (Rege, 2000: 1-12).

Though different associations and people had a right to form their own bodies, on the basis of mutual agreements they were not completely free to make their rules as it was enjoined that the *Samaya* should not be contrary to the Vedas, opinion of large number of people, interests of the state or righteousness. There were always disputes between different groups about the exact meaning of provisions of agreement and in such a situation, a council of the learned people was provided for to settle the disputes. Initially, the *Dharmaśāstra*s were not willing to accept the authority of the decisions of these communal bodies, but subsequently, they had to yield (Rai, 1979: 28-82).

The preceding discussion showed that the concept of contract had provided a base to the constitution of authority and as a result, different social and economic bodies enjoyed considerable freedom, autonomy and independence. But ancient Indian concept of *Samaya* failed to democratize Indian society, though the concept of *dharma* had a great potential of developing egalitarian concept of justice which recognized claims of individual based on his performance, achievement and needs. But all along, the caste system retained its dominance and in a way the concept was used to provide an additional reason for observing caste duties (Rege, 1985: 17-18). The rules born out of contract were ossified in the form of customs and usages.

But the Indian thinkers did successfully solve the problem of legitimization of authority by making the concept of contract basis of constitution of different authorities. The communal autonomy of self-governing units was the essence of Indian system.

V

In Indian political theory, the problem of the limits of politics was also discussed. Indian thinkers recognized the importance of politics in the sense that they held that the state was necessary to overcome anarchy and to pursue three goals of life — *dharma*, *artha* and *kāma*. There were three distinct traditions in India as far as the idea of the limits of politics was concerned : they were (1) *Arthaśāstra* tradition; (2) Buddhist tradition; and (3) the *Smṛti* tradition.

The *Arthaśāstra* tradition maintained that *daṇḍanīti* or politics was a master science and the pursuit of politics for the establishment of good society was the end of the state and by performing his duties in the spirit of selflessness the king could attain his goal in this world as well as in the other world. The second tradition was a Buddhist tradition which gave more importance to righteous behaviour. The Buddhists expounded the concept of *cakravartī* who was the world ruler. According to Buddha, "thus verily, by righteousness he sets the wheel in motion of which the course cannot be resisted by any inimical king, whatsoever." (Ghoshal, pp. 70-73) The antipathy between ethics and politics was realized by Buddha, hence, he argued that politics was dominated by the ends of *artha* and *kāma* instead of *dharma* and it was based on greed, merciless and shameless exploitation of the subjects by the ruler in his own interest. Hence, politics was no substitute for righteousness.[7]

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[7] For Buddhist political ideas, please refer to the following articles of Gokhle.
(1) B.G. Gokhle, "Early Buddhist Kingship," *Journal of Asian Studies*, vol. 26, pp. 5-22; (2) "*Dhamma* as a Political Concept," *Journal of Indian History*, vol. 24, pp. 249-62; (3) "The early Buddhist view of state," *Journal of American Oriental Society*, Vol. 89, 1969, pp. 731-38.

The third tradition was the *Smṛti* tradition which believed that in the first three *yuga*s of human development, use of *daṇḍa* was not necessary because at that time, the people followed the precept of *dharma*. It was only in the age of *kali* that *daṇḍa* was used to punish the guilty. The tradition did not think highly of the royal duties because the divinely designated king Manu refused to accept the kingship because he feared that the performance of royal duties would involve meting out punishment to people. This would sully his image. He accepted the kingship when the people promised him that they would own the sin. The *Smṛti* tradition was clear in its approach that howsoever high might be the duties of the king, the king could not become an ideal or a perfect man because he destroyed good along with evil while performing his duties. He was a *sthūla karma*.

In the *Mahābhārata*, we could see the tension between politics and philosophy because it was argued by Yudhiṣṭhira that the life of a philosopher was more desirable than that of the king. He refused to accept the path of expediency and told his wife and brother that for him the pursuit of *dharma* was more important than kingship. He followed the path of *dharma* not because he expected fruits thereof, but it was his duty to do so. He was trying to be true to himself. He did not believe in the theory of might was right or the policy of "tit for tat" because he maintained that the world would not survive for a day if everyone followed the policy of tit for tat. He believed that its application would give birth to constant enemity and divisiveness. It is wrong to believe that all human actions were based on deception or conspiracy (*Mbh.*, 3-35-36).

In Yudhiṣṭhira's discourses, there was a tension between the duties of the *kṣatriya* and the righteousness because he knew that whatever, Bhīṣma, Kṛṣṇa or Vyāsa might say, the former involved compromise with morality. Hence, for him the *kṣatriya*'s duty was a burdensome duty which was not desirable instrumentally as well as intrinsically. He was performing his duties but was at war with them. *Kṣatriya*s' duties were not desirable instrumentally because their results were doubtful and were not desirable intrinsically because he had to face consequences of his political action. The best men need not waste their time and energy in politics. It was one of the activities of human life, and the activities of the person who started *dharma cakra pravartana* might be more beneficial to the society. Hence it was pointed out by Ācārya Jawadekar that the ideal king could not be considered as the perfect human being because his use of punishment and violent methods sullied his actions.

But the philosopher could attain the ideal of perfect man because he sought to reform human beings without taking recourse to violence and punishment (Jawadekar, 1941: 153).

In our preceding discussion, we have seen that the Buddhist and the *Smṛti* traditions recognized the limits of politics.

VI

We have discussed three important themes in Indian political thought which try to throw light on certain key issues involved in political theory. It is rightly pointed out by John Spellman that many useful ideas had been borrowed in the West from political thought of Greece and Rome. He further said that the study of texts of ancient India might be of value today. Therefore, it was neither a dead subject nor one of interest to pedants alone (Spellman, 1964:XXII). I think Kauṭilya's discussion on methodology of the *Arthaśāstra* is quite relevant today in the sense that the use of 32 devices of science in the contemporary research in arts and social sciences would make it more accurate and precise. But for that purpose, we will have to get conversant with the philosophical roots of 32 devices of science. Hence the study of *āṇvikṣikī* and *yukti* will enable us to do better in our studies.

The constitution of political authority was the second important aspect of Indian political theory because it envisaged the need of the consent of the people in the formation of social and economic institutions. The concept of *Samaya* was democratic in character and it encouraged popular initiative at grass roots level. Due to contractual basis, the local democracies in ancient India did not destroy the cohesive character of the village communities. Our present *pañcāyat*s were *pañcāyat*s in name only because they did not enjoy local autonomy and power. The basic principle of compact was that initiative should come from below and there should be a proper balance between political authority and the autonomy of individual. I think Indian concept of contract encourages pluralism, tolerance of each other's viewpoint and experiments in different spheres of life. Thus, we have to renew the notion of compact, purging it of class and caste inequalities and giving a proper place to rights of individuals.

The three Indian traditions laid emphasis on the fact that the principles of justice and morality were more important than the interest of the state. They were not ready to concede all space in our public life to the state and politics. They recognized the importance of state and its need for the maintenance of the order in the society but they did not believe that the state and politics would alone solve our problems and dilemmas. They desired that the life of philosophy was more desirable than that of politics and the goal of the service of the society in the spirit of selflessness was more desirable than establishment and running of universal empires with the help of force and fraud.

VII

Indian political thought, thus, is an important branch of knowledge and the Indians had continued to contribute to it for almost two thousand years. We could see its renaissance in 1909 when a copy of Kauṭilya's *Arthaśāstra* was discovered and published. During the Indian freedom movement its importance was realized and some attempts were made for its retrieval. Dr. K.P. Jayaswal and Prof. Pratap Giri and his colleagues failed in their attempts because they tried to see Western political institutions in the earlier India or tried to judge Indian political institutions through modern perspective. Instead of unnecessary glorification and outright condemnation, it is always better to try to understand a particular political thought through its social milieu. Such an understanding would enable us to imbibe the basic principles of the texts and avoid mechanical borrowing.

After Independence, popularity of this subject started declining as it was essentially popular in departments of history and ancient Indian culture and the major contributions to the subject were made by Indologists and historians. Political scientists entered late in the field. But still the subject was taught at the post-graduate level in several universities of India. It was one of the optional papers offered along with other papers of political thought. In some universities, the study of *Arthaśāstra* of Kauṭilya was introduced as part of the study of classics along with the "Republic" of Plato. It was rarely introduced at the under-graduate level.

But at present, the subject is on decline and there are very few experts available in this field. Due to changing interests of the students the subject is not popular and it is seldom selected by students. The quality and quantity of Ph.D. theses produced in this area showed the poverty of academic standards and intellect. The theses written in the various regional languages are pale imitations of their counterparts in English. Therefore, in the last 20 years no worthwhile book on the subject has been produced by any Indian scholar.

Considering the importance of the subject, and in order to make young generation aware of the rich heritage of Indian knowledge system, it is necessary that ancient Indian political thought should be made a part of the syllabus. For those who want to specialize in this subject, a couple of optional papers for M.A. course can be included in the syllabus. But more important thing is that the Indian perspective of state and politics could be incorporated in the main body of the subject. For example, in the paper on Political Theory, Indian theory of state could be incorporated. Similarly, in the papers on Inter State relations and Public Administration, the Indian perspective on these topics could be included. In the paper on Local Self-government, we can devote a couple of units for ancient Indian experiments in local self-government including the study of constitution of local bodies.

The study of the Indian perspective of state and politics and polity and governance would go a long way in understanding our current problems — both in the East and the West. Indians tried to show that the problem of constitution of authority and its legitimization could be resolved in a more mature, humane and democratic manner because they relied upon pluralism, tolerance and autonomy to avoid mutual confrontation. They correctly understood the limits of politics and encouraged initiative from the great social workers.

References

Agrawala, V.S., 1963, *India as Known to Panini*, Varanasi: Prithvi Prakashan.

Altekar, A.S., 1972, *State and Government in Ancient India* (3rd edn.), Delhi: Motilal Banarsidass.

Aurobindo, Sri, 1972, *The Spirit and Form of Indian Polity*, Birth Centenary Library, vol. 14.

Aurobindo, Sri, 1947, *The Spirit and Form of Indian Polity*, Delhi: Arya Publishing House, and Birth Centenary Library, vol. 14, Sri Aurobindo Ashram, Pondicherry.

Chattopadhyay, D., 1971, "Ancient Indian Materialism," *New Indology* — Felicitation volume presented to Dr. Walter Ruben, ed. H. Kruger, Barlin: Academe, Verlag.

Daftari, K.L., 1976, *Dharma Rahasya* (2nd edn.), Mumbai: Maharashtra Sahitya ani Sanskriti Mandal.

Dasgupta, S.N., 1975, *A History of Indian Philosophy*, vol. II, Delhi: Motilal Banarsidass.

Ghoshal, U.N., 1966, *A History of Indian Political Ideas* (2nd edn.), London: Oxford University Press.

Jawadekar, S.D., 1941, *Gandhivad*, Pune: Vad Vivechana Mala.

Jayaswal, K.P., 1970, *Hindu Polity — A Constitutional History of India in Hindu Times* (3rd edn.), Bangalore: Bangalore Printing Press.

Joshi, Laxmanshastri, 1996, *Vaidik Sanskriticha Vikas* (3rd edn.), Wai: Prajnya Pathshala.

Kane, P.V., 1980, *History of Dharmaśāstras* (in two volumes Marāṭhī translation) (2nd edn.), vol. I, Mumbai: Maharashtra Sahitya and Sanskrit Mandal.

Kosambi, D.D., *An Introduction to Study of Indian History* (2nd edn.), Mumbai: Popular.

Marx and Engels, *Pre-capitalist Social Formations*, Progress, Moscow, 1979, pp. 29, 70, 75, 239.

Pant, A.D., 1968, Introduction to Beni Prasad's book — *Theory of Government in Ancient India*, Allahabad: Central Book Depot.

Rai, Jaimal, 1974, *Rural-Urban Economy and Social Change in Ancient India*, Varanasi: Bharatiya Vidya.

Rajawade, C.V., 1918, *Dīgha Nikāya*, vol. I (Marāṭhī translation), Baroda: Sayaji Sahitya Mala.

Rege, M.P., 1985, *Concepts of Justice and Equality in the Indian Tradition*, Pune: Gokhale Institute of Politics and Economics.

———, 2000, "Treatment of Communities and Social Hierarchy according to Dharma," *Journal of Shivaji University*, vol. 35, 1-12.

Ruben, W., 1956, "The Beginning of the Epic *Saṁkhyas*," *Annals of Bhandarkar Oriental Research Institute*, vol. 37.

Shah, K.J., 1992, "Of Artha and *Arthaśāstra*," *Comparative Political Theory*, ed. A. Parel and R. Keith, Delhi: Sage, pp. 159-60.

Spellman, J., 1964, "Introduction," *Political Theory of Ancient India: A study of Kingship from earliest times to 300* AD, Oxford: Clarendon Press, XXII.

Th. D. Beri *et al.* (ed.), 1977, *Sources of Indian Tradition*, Delhi: Motilal Banarsidass.

Vidyabhushan, S.C., 1979, *A History of Indian Logic* (reprint), Delhi: Motilal Banarsidass.

I

Select Bibliography on Ancient Indian Political Thought and Institution

Barua, B.M., *Aśoka and his Inscriptions*, Calcutta, 1925.

Edgerton, text and ed. *The Pañcatantra*, American Oriental Series, New Haven, 1924.

Gharpure, J.R., tr., *Yajñyavālkya-Smṛti*, with the Mitākṣarā, Vīrmitrodaya and Dīpakalika by Parts 1-4, Bombay, 1936-44.

Jha, Ganganath, ed., *Manu-Smṛti*, with Medhātithi's Commentary, BI, Calcutta, 1932-39.

Jha, Ganganath, tr., *The Laws of Manu* with the *Bhāṣya of Medhātithi* in 5 volumes, Calcutta, 1920-26.

Jolly, ed., *Manu-Smṛti*, London, 1887.

Kangle, R.P., *Arthaśāstra of Kauṭilya* — Text and Translation in Three Volumes, (2nd edn.), University of Mumbai, 1971-75.

Kauṭilya's *Arthaśāstra* (3rd edn.), Shamshastry, Mysore, 1929.

Kinjavadekar, R., ed., *The Mahābhārata*, with Commentary by Neelkantha, Pune 1929-33).

Kosambi, D.D., ed., *The Śataka Trayam of Bhartṛhari*, Bombay, 1946.

Laxmidhara, *Kṛtya Kalpataru*, vol. 11 (Rajadharma Kand), ed. K.V. Rangaswami, Aiyangar, GOS, 1931.

The Mahābhārata — A Critical Edition, Bhandarkar Oriental Research Institute, Pune 1914-1970, under different editors.

Manu-Smṛti, With Kullūka's Commentary, Mumbai, 1929.

Mishra, Mitra, ed., *Rājanīti Prakāśa* in the Chowkhamba Sanskrit Series, Banaras, 1960.

Oppert, G., *Śukranītisāra*, Madras, 1882.

Panasikar, Waman Shastri, ed., *Yajñyavālkya-Smṛti*, with Commentary, the Mitākṣarā, Mumbai, 1909.

Rājanīti of Amātya, Ajnyapatre of Ramchandra Pant Amatya, Venus Prakashan, Pune, 1969. English tr. Prof. S.V. Puntambekar "A Royal Edict on Principles of State Policy and Organisation," pp. 81-105, *Journal of Indian History*, April, 1929, vol. 8, August, 1929, pp. 207-33.

Rājanīti Ratnakāra of Caṇḍeśvara.

Roy, P.C., English Translation, *The Mahābhārata*, and others 13 volumes, The Oriental Publishing House Co., Calcutta, 1952-63.

Ryder, A., tr., *The Pañcantantra*, Delhi, 1974.

Sane, K.N., ed., *Rājanīti of Malhar Ramrao Chitnis*, Kavyetihas Sangraha, vols. 10-11, Pune, 1878-88.

Sarkar, B.K., tr., *Śukranītisāra*, English Sacred Books of the Hindus, vol. 13, Allahabad, 1914.

Shastri, T. Ganapati, ed., *Kamāndakā Nītisāra*, with the Commentary of Shankarcarya, by T.S.S. Trivandrum, 1912.

———, Kauṭilya's *Arthaśāstra* in three volumes with his own commentary Shrimula, T.S.S. Trivandrum, 1924-25.

Somadeva, *Nītivākyamritam*, ed. with anonymous commentary, by Pannalal Soni, Bombay, 1939.

Stenzler, A.F., ed., *Yajñyavālkya-Smṛti*, Berlin, 1849.

Śukranītisāra, ed. with a Hindi translation by Pandit Mahendrachandraji, Venkateshvara Press, Pune, 1925.

Thomas, F.W., ed. and tr., *Bṛhaspatya-Sūtram*, Le Museon, 1916.

II

Select Books on Ancient Indian Political Thought

Aiyangar, K.V.R., 1941, *Rajadharma*, Political Thought of Smṛtis, Adyar.

Altekar, A.S., 1971, *State and Government in Ancient India* (3rd edn.), Patna: Motilal Banarsidass.

Aurobindo, Sri, 1974, *Spirit and Form of Indian Polity*, Calcuttra: Arya Publishing House.

Bhandarkar, D.R., 1929, *Some Aspects of Ancient Hindu Polity*, Banaras: Banaras Hindu University.

Chakravarti, P.C., 1972, *The Art of War in Ancient India*, Delhi, Oriental Publishers.

Drek, Meier C., 1962, *Kingship and Community in Early India*, Bombay: Oxford University Press.

Ganguli, N.C., 1939, *Indian Political Philosophy*, Calcutta: Kamala Book Depot.

Ghoshal, G.N., 1966, *A History of Indian Political Ideas*, Bombay: Oxford University Press.

Heesterman, J.C., 1985, *Inner Conflict of Tradition*, Delhi: Oxford University Press.

Jayaswal, K.P., 1955, *The Hindu Polity* (2nd edn.), Bangalore: The Bangalore Printing Press.

Law, N.N., 1960, *Aspects of Ancient Indian Polity*, Bombay: Orient Longman.

Misra, S.N., 1976, *Ancient Indian Republics*, Lucknow: Upper India Publishing House.

Prasad, Beni, 1968, *Theory of Government in Ancient India* (2nd edn.), Allahabad: Central Book Depot.

Saletore, B.A., 1963, *Ancient Indian Political Thought and Institutions*, Bombay: Asia Publishing House.

Sarkar, B.K., 1922, *Political Institutions and Theories of Hindus*, Leipzig: Verlana van Market and Petters.

———, 1922, *The Positive Background of Hindu Sociology*, Allahabad: Panini Office.

Sharma, R.S., 1968, *Some Aspects of Political Ideas and Institutions in Ancient India* (2nd edn.), Patna: Motilal Banarsidass.

Spellman, J., 1964, *Political Theory in Ancient India*, Oxford at Clarendon Press.

Thaper, R., 1983, *From Lineage to State*, Delhi: Oxford University Press.

Verma, V.P., 1974, *Studies in Hindu Political Thought and Its Metaphysical Foundations* (3rd edn.), Delhi: Motilal Banarsidass.

13

Governance According to Manu-Smṛti

Bharat Jhunjhunwala

Vāsanās and Social Harmony

FOUR TYPES OF VĀSANĀS

EVERY individual is born with some *vāsanās*. These are "inherited." They are fixed from the earliest childhood. Fulfilment of these inner *vāsanās*, or *vāsanā-kṣaya*, leads to evolution. As the most visible *vāsanās* are fulfilled, one can move on to the fulfilment of his yet deeper *vāsanās*. This evolution is the basic purpose of life.

The *vāsanās* have been classified into four categories — physical pleasures, wealth, power and self-knowledge or *bhoga*, *vitta*, *loka* and *svādhyāya*. These are said to be of śūdra, vaiśya, kṣatriya and brāhmaṇa *varṇa* respectively.

The final determinant of *varṇa* is this inner *vāsanā*. Birth, inheritance, occupation, environment, the type of life one chooses to live, and the kind of activities he undertakes, are all contributory factors to the determination of one's inner *vāsanās* but none of these are determinant in a final sense. Neither birth nor occupation is the final determinant of *vāsanā*. It may well be the case that one born in the house of a kṣatriya may have *vitta vāsanā* (like Sanjay Gandhi's foray into car making with Maruti); or one born in the house of a śūdra may have *loka vāsanā* (like B.R. Ambedkar). Thus inheritance is only one factor that contributes to the determination of one's inner *vāsanā* or *varṇa*.

There is very strong emphasis on the decisive influence of birth in the determination of *vāsanās* in *Manu-Smṛti*. This may have been appropriate for that historical epoch. But it needs to be reconsidered in the present context because other influences — education, TV, media, etc. — have become very strong.

Our environment is composed of people having all four *vāsanās*. The foetus is subjected to all types of mental waves in the womb. We acquire all the four *vāsanās* in smaller or larger measure. Thus, each individual imbibes all the four *vāsanās* if not already inherited. As a result every human being is part driven by *bhoga*, *vitta*, *loka* and *svādhyāya vāsanās*.

The dominant *vāsanā* changes over time. As one is able to fulfil one of his *vāsanās*, he spontaneously evolves to the fulfilment of others. One may start his adult life as a worker seeking the security of *bhoga* that is obtained in serving another and avoiding risks of business. Soon, however, he may be able to fulfil his desires of food, music and cars. Then he resigns his cushy job and starts his business. He has fulfilled his *bhoga vāsanā* and evolved to *vitta vāsanā*.

The inner *vāsanās* are basically positive and liberating. They are what which gives one the motive to work and to fulfil oneself. However, they can become enslaving if one does not follow their call. If the inner *vāsanā* is that of *vitta* but one seeks *loka vāsanā*, then the person may fail to fulfil his *loka vāsanā* because his inner self is not supportive. He will also not fulfil his *vitta vāsanā* because he is undertaking activities that beget social acclaim rather than profits.

The Problem of Social Harmony

The removal of *vāsanās* is undertaken through praxis — a combination of action and reflection. Let us say one has the *vāsanā* of growing flowers. In order to remove this *vāsanā* he has to grow some flowers. That will give him some happiness. But then, he might want to grow many varieties of flowers.

Now he could respond in one of the two ways. He could feel "unhappy" that he has not been able to grow many varieties of flowers. He could try to grow other varieties more aggressively. In due time that would lead to fulfilment of his flower *vāsanā*.

Alternatively, he could reflect, "If ten flowers did not fulfil me, how will twenty?" Such reflection might help him realize the futility of endless growing of flowers. He could then go on to the fulfilment of his yet deeper *vāsanās*.

This combination of action (*karma-yoga*) and reflection (*jñāna-yoga*) is praxis. It helps one understand the limitations of endless growing flowers and leads to the removal of that *vāsanā* without having to go through the difficult process of growing so many flowers.

The removal of *vāsanā* requires some minimal action. The exact ratio between action and reflection may vary from person to person, say from 1:100 to 100:1 but neither can ever be zero. Even the ascetics who meditate in the caves of the Himālayas have to undertake action to pick up fruits from the trees to eat or to remove skins from dead deer to sit upon.

The problem is that action undertaken by one person to fulfil his *vāsanā* may hit at the *vāsanā* of another. A shepherd, whose *vāsanā* is to graze cows, lets his cows to eat away the crop planted by a farmer. The *vāsanā* of the shepherd hits at the *vāsanā* of the farmer. Since every action has a reaction, the farmer hits back and kills one of the cows of the shepherd. That prevents the shepherd from fulfilling his *vāsanā*. In order to prevent such conflicts it is essential to work out *a social arrangement whereby the pursuits of the four vāsanās can co-exist*. This is the central problem of governance.

The rules framed for such conduct, i.e., which lead to the long-term good of the individual as well as the society is called *dharma. Dharma* is specific to each *varṇa*.

For example, for a śūdra, truth is what his employer says. If a diplomat employee (śūdra) is asked to tell an opponent that a war will be launched if he failed to pay tribute; that is the truth for him. Whether a war will actually be launched is not his concern. His truth is what his employer has told him. It is his *dharma* to do the bidding of the employer king.

For a vaiśya, it is *dharma* to say, "The prices will increase tomorrow, better buy now," although he has no knowledge whether they will indeed increase tomorrow. For a kṣatriya, as mentioned above, it is *dharma* to hold out false threats to secure the surrender of an opponent.

For a brāhmaṇa alone it is *dharma* to be "truthful" in a genuine sense. Such *varṇa*-specific rules are central to *varṇa-vyavasthā*.

Each of the four *varṇa*s may seek to exhaust their *vāsanā*s by *dharma* or *adharma*. A vaiśya may sell his product by lying about its weight. That would be *adharma*. The purchaser's *vāsanā* of consumption will be hit and would, in the long run, rebound on his trade and cause his downfall. Similarly, a brāhmaṇa who has *svādhyāya vāsanā* may do penance to acquire psychic powers and use them to harm his opponents. Such use of *svādhyāya* is *adharma*.

These rules, or *dharma*, give a long-term and socially positive orientation to one's *vāsanā*s. They guide a person to do such that will promote his own evolution and that of the society in the long run.

Role of the Brāhmaṇa

Social balance is secured in *varṇa-vyavasthā* by creating friction between the four *varṇa*s. The śūdra and vaiśya were in friction in the fixation of wages. The kṣatriya (government) mediated between them. The vaiśya and the kṣatriya were in friction in regard to taxes. The latter collected taxes and the former resisted. The brāhmaṇa mediated between the two. The kṣatriya and brāhmaṇa were in friction. The brāhmaṇa saw to it that the kṣatriya did not turn oppressive towards the śūdra and vaiśya. It is these *inter-se* friction between the different *varṇa*s that lead to social balance. The duties of the four *varṇa*s were prescribed to secure such friction-and-balance.

The śūdra was advised to serve the *dvija* (the three "upper" *varṇa* — brāhmaṇa, kṣatriya and śūdra). His dominant *vāsanā* was that of *bhoga*. It was best obtained by unquestioningly serving the businessmen, government or religious persons. If he began questioning the workings of these *dvija*, he was likely to be thrown out of job and his *bhoga* would be hit. He may change the employer if dissatisfied or appeal to the kṣatriya for redressal of injustice, but he should not question the working of the *dvija*.

The vaiśya was advised to accumulate as much money as possible and use it either for productive investment (*yajña*) or charity (*dāna*). The investment kept the economy going while charity took care of the poor. The *dāna* to brāhmaṇa created a vaiśya-brāhmaṇa axis which could help contain the excesses of the tyrannical kṣatriya. He was advised never to fight with the kṣatriya under whose protection alone he prospered. If oppressed, he may move into the realm of another more benign kṣatriya. Relief from cruel kṣatriyas came through the brāhmaṇa. He was advised to be benign towards the śūdra working for him. In modern paradigm, the business must not meddle in politics. If it does, it risks persecution and the dangers of losing its money.

The kṣatriya was advised to be benign towards the śūdra and vaiśya. Minimal taxes were to be collected. He was advised to ever try to expand his kingdom through wars and other stratagems. The low taxes brought prosperity. The wars brought vitality in governance. Tyrannical kṣatriya lost the support of their populations who supported their opponents. They were defeated in war. Thus bad governance was contained. The kṣatriya was advised to listen to the brāhmaṇa who, rooted in the masses, was positioned to guide him correctly. The quest for "peace" is rejected in *varṇa-vyavasthā*. Valour, war and death are all considered to be positive features which lead to the removal of the *loka vāsanā* of the warriors and simultaneously led to good governance.

The brāhmaṇa, i.e., one who has transcended his lower *vāsanā*s of *bhoga*, *vitta* and *loka*, was advised to practise voluntary poverty and devote himself to *svādhyāya* — meditation and self-study. Socially, he was to take alms from the other three *varṇa*s. His particular responsibility was to restrain the tyranny of the kṣatriya by giving advice to the kṣatriya himself. If that was ineffective, he was advised to (1) use his psychic powers acquired from *tapa* against the bad kṣatriya; and (2) guide and encourage the vaiśya and śūdra to revolt against the tyrannous kṣatriya. In the modern paradigm, this latter task is supposed to be performed by the civil society—press, intellectuals, NGOs, etc.

Each *varṇa*, in the pursuit of its own *vāsanā*, was in constant friction with others. Out of this friction two results were simultaneously obtained: (1) the aggressive pursuit of one's own *vāsanā* helped all the persons to fulfil their inner *vāsanā*s and thereby evolve to their deeper *vāsanā*s; (2) friction led to tension between the *varṇa*s which, in turn, led to social balance.

The social function of the brāhmaṇa was critical in the scheme. The kṣatriya ensured that the vaiśya worked for the social good; the kṣatriya and vaiśya together ensured that the śūdra worked for the social good; but who was to ensure that the kṣatriya worked for the social good? Obviously, the brāhmaṇa. Rooted in his *svādhyāya*, not interested in the worldly affairs, he alone could take a dispassionate view towards the kṣatriya. He alone could determine whether the kṣatriya was benign or evil, for very often what is good for the society in the long run is resisted by the vaiśya and śūdra for their short term gains.

The brāhmaṇa was to secure good governance by giving advice to a benign kṣatriya and fostering revolt against a tyrannous kṣatriya.

Who is to ensure that the brāhmaṇa does his duty? It is here that there is no certainty. In fact, this is what has been responsible for the decline of India. The real brāhmaṇa spread across various professions was sidelined; and the śūdra and vaiśya among the *paṇḍit*s, proclaiming them to be brāhmaṇa, sought the fulfilment of their *bhoga* and *vitta vāsanā* as stooges of kṣatriya. The control of brāhmaṇa over the kṣatriya was lost. Instead they started living off the crumbs of the kṣatriya. The kṣatriya became tyrannous and indulged in *bhoga* instead of expanding their *loka* by waging wars. The śūdra and vaiśya got no relief through the brāhmaṇa and the society collapsed and India became weak.

It must be admitted that there is no guarantee of good governance in *varṇa-vyavasthā*. The reliance is on human evolution. It is thought that in the culture of aggressive pursuit of one's *vāsanā*s, there will be some persons who would have transcended their *bhoga-*, *vitta-* and *loka-vāsanā*. Having transcended their lower *vāsanā*s they will be invariably pained by the bad governance around them and rise to resist. The existence of such brāhmaṇa alone was the guarantee of good governance.

Śūdra Paṇḍita and Brāhmaṇa Kumhāra

If the system was so good, why did failure of governance take place in India? Why was India so easily enslaved? The answer is that the true "brāhmaṇa" spread across various professions lost his self-consciousness as a brāhmaṇa. The potter who had fulfilled his *bhoga-vāsanā*, *vitta-vāsanā* and *loka-vāsanā* and was engaged in *svādhyāya* never felt that he *was* a brāhmaṇa. It never dawned on him that it was his social responsibility to restrain the tyrannous kṣatriya. Although capable of restraining the kṣatriya, he never sought to do that because he did not know that it should be so done. He was unable to see the deception being perpetrated by the *paṇḍit*s in self-appropriating the title of "brāhmaṇa" for themselves.

The result was that the real brāhmaṇa did not resist kṣatriya tyranny because he was not conscious of his brāhmaṇahood. The pseudo-brāhmaṇa, the *paṇḍita*, did not resist kṣatriya tyranny because he was happy living off the crumbs of that tyranny. He pursued his *bhoga* and *vitta-vāsanā* under the protection of a tyrannous kṣatriya.

The Theory of Manu-Smṛti

DEFINING VARṆA

The *Manu-Smṛti* does not explicitly define *varṇa*. A simple reading appears to indicate that it is defined on the basis of birth. But a deeper study indicates that it sees birth as being the major contributory factor. Birth is not the sole determinant of one's *varṇa*.

A truthful teacher (i.e., *guṇa sattva*, *jāti paṇḍit*) who seeks the security of government employment in order to fulfil his *bhoga-vāsanā* is to be considered to be of śūdra *varṇa*. A *kumhāra* (i.e., *guṇa rajas*, *jāti kumhāra*) who seeks guidance from a saint to overcome his weaknesses and wants to pursue his *svādhyāya-vāsanā* should be considered to be of brāhmaṇa *varṇa*.

We now proceed to understand the *Manu-Smṛti*.

Classification of Vāsanās

> Now in what action the Lord first employed any (person), that (person) being reproduced again (and) again, spontaneously followed just that.
>
> Baneful (or) harmless; gentle (or) savage; right (or) wrong; true (or) false; whatever he, at the time of creation, assigned to any that quality spontaneously entered it. — Manu 1.28-29

In the primitive society there was no distribution of duties. As division of labour took place, individuals began to specialize in certain professions. Certain qualities arising from that profession became pronounced.

According to Manu, initially, there was nothing like *varṇa*. It was only *jāti* or profession that was allocated to different persons. The *guṇa* — *sattva, rajas* and *tamas* — and the *vāsanā*s arising from their interplay, arose from the practice of that profession.

Let us say we are in a primitive society. All were equal. Now A began to practise the profession of agriculture. The farmer had to wait for long periods between agricultural operations. This idleness accentuated the *tamas guṇa* in him and strengthened his *bhoga-vāsanā*. Gradually he became a śūdra. B, on the other hand, began to practise the profession of a soldier. His *rajas guṇa* was accentuated and his *loka vāsanā* was strengthened. Gradually, he became a kṣatriya. This is how originally the four *varṇa*s were created.

In the first instance, profession led to acquisition of certain *vāsanā*s. It is the profession or work which is the primary source of *vāsanā* or *varṇa* in a historical sense. It is important to realize that this verse only talks of the "first" instance. Once a profession is adopted, then the *vāsanā*s transmit themselves as *vāsanā*s. Subsequently, the inherited *vāsanā*s and professions become two parallel forces which together determine the dominant *vāsanā*.

In subsequent generations, transmission of *vāsanas* takes place directly. Manu would link it, in substantial measure, to birth. Modern psychology is veering towards the same view. It is being recognized that psychic patterns are transmitted not by parents alone but by "ancestors." Freud, for example, writes:

> Dreams bring to light material which cannot have originated either from dreamer's adult life or from his forgotten childhood. We are obliged to regard it as a part of the *archaic heritage* which the child brings with him into the world, before any experience of his own, influenced by the experience of his ancestors. — Storr 1973:15-16

Note the term "ancestors" rather than parents. This indicates that the experience of many generations is transmitted to the child albeit, through parents. Similarly, anthropologists write that the genetic code is "both profoundly physical and profoundly behavioural at the same time" (Tiger 1971: 17).

The *vāsanā*s of an individual are influenced not only by the profession that he practices but by his ancestral heritage. Thus, the *vāsanā*s of the ancestors "reproduce themselves again and again," as *Manu-Smṛti* says.

> Those who are devoid of *varṇa*, of unknown *varṇa*, or of impure *varṇa*, know them by their actions. — Manu 10.57

It is said earlier that actions, not birth, is the ultimate source of *vāsnā*s and *varṇa*. If the inherited *vāsanā*s (or *varṇa* by birth) of a person is not known, then his *varṇa* is to be determined by the action or profession that he engages himself in. If he takes to the profession of a teacher, *svādhyāya-vāsanā* is likely to get accentuated gradually and he may be considered to be a brāhmaṇa.

This verse applies in the limited circumstance when the dominant *vāsanā* or *vāsanā*-determined *varṇa* of a person is not known. It does not override the *vāsanā*. It provides a second level substitute for *vāsanā* determination in case the dominant *vāsanā* is not already known.

Originally, the progression was profession → *vāsanā* → *varṇa*. Once, however, this was entrenched, the sequence changes to *vāsanā* → *varṇa* → profession. Now, a person, conscious of his *vāsanā* and *varṇa* takes to a profession suitable to the same.

The original creation of *varṇa* is described as follows in *Manu-Smṛti*:

> Now for the prosperity of the worlds, he from his mouth, arms, thighs and feet created the brāhmaṇa, kṣatriya, vaiśya and śūdra. — Manu 1.31

> Of brāhmaṇa superiority (is) by knowledge, but of kṣatriya by valour; of vaiśya by reason of property (and) wealth, and of Sudra by birth.
> — Manu 2.155

Mouth, arms, thighs and feet signify different qualities:

- Knowledge (which is expressed by speech or mouth),
- Power (which resides in the arms),
- Wealth (which is obtained by travelling undertaken with the thighs),

- Physical pleasures (which is obtained without bother by serving another).

Here "birth" as superiority of śūdra needs explanation. A śūdra is, by definition, one who does not have the active *vāsanā*s of *svādhyāya*, *loka* or *vitta*. Since he does not seek these, he does not undertake *yajña* — investment. He does not have a frame of mind which displays itself out in action. His is a passive mind which cannot be gauged by his actions. Thus, his superiority can only be assessed by reference to his inherited qualities — birth. It is his inheritance that determines his character more than in the case of other *varṇa*s.

Varṇa-Vyavasthā and Governance

INTER-SE CONTRADICTIONS

> The brāhmaṇa, kṣatriya (and) vaiśya (constitute) the three *dvija varṇas*; but the fourth, the śūdra, has only one profession. There is no fifth *varṇa*.
>
> — Manu 10.4

Why should there be only four *varṇa*s, not three or five? After all, it is possible to classify *vāsanā*s in either more or less than four categories. The answer lies in the mutual incompatibility. If two *vāsanā*s cannot be pursued simultaneously due to their *inter-se* contradictions, then there is need to fulfil them sequentially, one after the other. This leads to the stipulation of separate *varṇa*s.

The *vāsanā* of self-knowledge and social reform are compatible with each other. Thus these two *vāsanā*s have been clubbed together in *svādhyāya-vāsanā*.

Some of the *inter-se* contradictions of the four *vāsanā*s are explained below:

Brāhmaṇa-Kṣatriya: A brāhmaṇa, striving for *svādhyāya* should be truthful. A kṣatriya has to resort to lies in the process of statecraft. One who has both *vāsanā*s of *svādhyāya* and *loka* will get into trouble. If he practises truth, he will lose his politics. If he practises statecraft, he will loose *svādhyāya*.

Brāhmaṇa-Vaiśya: One with the *svādhyāya vāsanā* is advised to practise non-possession. A vaiśya's *vāsanā* is to acquire much wealth. The two cannot go together.

Kṣatriya-Vaiśya: A kṣatriya is constantly at war, expanding his domains, encircled with insecurity. The vaiśya wants to accumulate wealth. His *vāsanā*s are to hold on to his wealth. The constant risk of war is an anathema to a vaiśya.

Brāhmaṇa, Kṣatriya and Vaiśya-Śūdra: One seeking *svādhyāya* has to have his self "free" to experiment with himself. One seeking power has to run a constant risk of war. One seeking wealth has to constantly live with uncertainty. A śūdra, desiring security and *bhoga*, is unwilling to take any of the above risks.

These *inter-se* contradictions are behind the stipulation of only four *varṇa*s.

Logically, there is no bar to the creation of a fifth *varṇa* but we would have to examine the precise nature of *inter-se* contradiction with the other four *vāsanā*s.

BRĀHMAṆA

> Let the king think over the most important designs referring to the six matters with a learned brāhmaṇa distinguished from all. — Manu 7.58

The brāhmaṇa here must be understood strictly as one who seeks *svādhyāya*. Having transcended his worldly *vāsanā*s, he can take an unattached view unbiased by his own self-interest. A brāhmaṇa who is employed by the king will invariably be influenced by his own self-interests of salary, wealth and power.

> . . . A brāhmaṇa is born . . . to guard the treasury of *dharma*.
>
> — Manu 1.98

Dharma must be understood as "greatest long-term good of all," i.e., that which reconciles the interests of various contending groups as well as between present and future. It is possible to take such a view only when the *vāsanā* is that of *svādhyāya*. One who is engrossed in worldly *vāsanā*s is likely to be biased by his own *vāsanā*s in giving counsel.

All is well if the kṣatriya listens and abides by the counsel of such a brāhmaṇa. What happens though when the kṣatriya does not do so and becomes tyrannous?

> Since the kṣatriya arose from the brāhmaṇa, the brāhmaṇa alone should be the one to subdue the kṣatriya at all time, when it has grown overweening toward the brāhmaṇa. — Manu 9.320

When a kṣatriya becomes arrogant and disregards the *svādhyāya*-seeking brāhmaṇa, he negates the welfare of all the people because the brāhmaṇa represents *dharma* or the good of all.[1] The responsibility of subduing such a kṣatriya rests squarely on the brāhmaṇa's shoulders.

Varṇa-vyavasthā holds that it is the *svādhyāya*-seeking brāhmaṇa who alone can control the kṣatriya. He, not desiring any favours from the kṣatriya, can stand up to him. This controlling function is to be discharged by using his speech as a weapon:

> (In comparison) between his own power and the power of the king, his own power is the stronger; therefore, by his own power alone should a twice-born man (brāhmaṇa) punish enemies.
>
> He should employ without hesitation the verses of Atharvan and Aṅgiras. The brāhmaṇa's weapon is speech; with this let the twice-born man slay his enemies.
>
> The kṣatriya may divert distress from himself by means of power of his arm; the vaiśya and śūdra, moreover, by means of wealth; (but) the highest of the twice-born by muttered homa and *japa*.
>
> — Manu 11.31-33

The brāhmaṇa has power greater than that of the kṣatriya. Thus, it falls to the responsibility of the brāhmaṇa to punish the kṣatriya who betrays *dharma*. The brāhmaṇa has to punish using his own power. This power consists of speech which is understood here in terms of psychic powers. In the present context of expansion of information and literacy, perhaps this should also be understood to include guiding the vaiśya and śūdra to revolt against an *adhārmic* kṣatriya.

In the present times, perhaps, the term "speech" needs to be expanded to include "political guidance" of the vaiśya and śūdra. The expansion of means of communication — radio, TV and press now enable instant communication with the people. They are a potent force that can force a correction upon the kṣatriya. Thus, the modern brāhmaṇa may use speech to galvanize the "people" — vaiśya and śūdra — against a tyrannous king.

One example of this happening is the call by Karl Marx for the śūdra of the world to unite and overthrow the tyranny of unregulated capitalism. It was the "speech" of Marx that galvanized the people and forced reform of capitalism.

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[1] Perhaps there is need to examine whether the *vāsanās* of *svādhyāya* and restraining the kṣatriya involve an *interse* contradiction. While *svādhyāya* requires distance from society, restraining the kṣatriya requires intense social involvement. This may be a future line of inquiry that we may have to pursue in due course of time.

The brāhmaṇa can discharge this social function of controlling the kṣatriya only if he remains independent of the kṣatriya:

> He who receives (a gift) from an avaricious king (who) acts in opposition to the treatises goes in succession to these twenty-one hells.
>
> Wise brāhmaṇa who know that, (and) who recite the Veda, desiring happiness in the other world, do not accept (gifts) from a king.
>
> — Manu 4.87-91

The kṣatriya must listen to the brāhmaṇa and rely on his assessment of what constitutes *dharma*; the brāhmaṇa too must provide such counsel to the kṣatriya, but he should remain independent of the kṣatriya for his livelihood. If dhārmic, a king should be constructively guided; if adhārmic, he should be punished, by speech.

Only by scrupulously maintaining his independence can he make a dispassionate assessment of the character of the kṣatriya. The brāhmaṇa should minimize even taking honours from the king. The more gifts he accepts, in same proportion he loses his ability to take an independent view.

In this context, Karl Marx had correctly said that the material conditions decisively influence the thinking of a person:

> It is not the consciousness of beings that determines their being, but, on the contrary, their social being that determines their consciousness.
>
> — Marx 1859: 181

The basic point that Marx makes is that one's material conditions decisively influence his mind. Thus, if a brāhmaṇa were to materially depend upon a kṣatriya for his sustenance, his ability to think independently would be impaired.

KṢATRIYA

> . . . let the king ever arrange the taxes in (his) kingdom, so that the king and vaiśya may get profits.
>
> — Manu 7.128

The task of the king is to govern the "people." The king himself shall be governed by the brāhmaṇa. The primary task of the kṣatriya, therefore, is to govern the vaiśya and śūdra.

In terms of numbers, the śūdra is the maximum and higher *varṇas* progressively less. Taking a ratio of 10 : 1, i.e., one vaiśya for 10 śūdra and so on, the numbers turn out as follows:

Brāhmaṇa	1		
Kṣatriya	10	Total Governors	11
Vaiśya	100		
Śūdra	1000	Total Governed	1100

In order to govern the total 1111 population, the chief task of the kṣatriya is to govern the 100 vaiśya. The vaiśya, in turn, is required to govern the 1000 śūdra.

The kṣatriya is advised to ensure that the vaiśya gets profits. A vibrant commerce alone ensures that the king is able to raise revenue for his governance.

> As the water leech, calf and insect eat little by little (their) food, so yearly taxes are to be taken little by little from the kingdom by the king.
>
> — Manu 7.129

> As the sun with its beams takes (to itself) the water during eight months, so let (the king) ever take from his realm the revenue. . . . — Manu 9.305

The kṣatriya is advised to extract low taxes and be positively disposed towards their increasing wealth. The increased wealth of the vaiśya enables them — both the kṣatriya and vaiśya — to employ a large number of śūdra thus ensuring their welfare as well.

> If the king, through folly, harasses by carelessness his own kingdom, he, with his kin, soon loses (his) kingdom and life. — Manu 7.111

> Let him not cut off his root and (the root of) others through much covetousness; for cutting off his root, he would torment himself and them. — Manu 7.139

If a kṣatriya were to extract high taxes, become "covetous," or otherwise harass the vaiśya and śūdra, the wealth of the kingdom would be reduced because the vaiśya would lose interest in reinvestment and soon the king would himself perish out of lack of revenue. Thus, the *ultimate* arbiters of the king's fate are the vaiśya and śūdra. Their happiness alone ensures the longevity of the king.

The problem, however, is that it is difficult for a kṣatriya to exercise self-restraint on his powers and secure his own ultimate good. Desirous of power, and having acquired power, there is a spontaneous urge to exercise his powers. This is what the kings of pre-Independence India often did. They typically imposed taxes well in excess of the prescribed one-eighth of the produce, and built huge palaces instead of canals and metal weaponries which ultimately led to their fall before the British onslaught. They became short-sighted, or *adhārmic*.

It was the responsibility of the brāhmaṇa to keep the kṣatriya on course by either giving advice or curse. That would have forced the kṣatriya to take to lower taxation and pursue long term or *dhārmic* policies. It is here that the brāhmaṇa failed to discharge their social function which led to a kṣatriya bereft of control. This was the chief reason for the decline of India in the last 500 years or so.

For example, it is said that the King of Nepal once became pro-Buddhist and became tyrannous towards the Hindus. Then Gorakhnātha went to Kāṭhmāṇḍu, tied all the clouds in his mace and sat down. There was no rain in Nepal. Ultimately, the king had to submit to the writ of Gorakhnātha and reverse his policies. "Speech" may have meant such curses.

VAIŚYA AND ŚŪDRA

> A twice-born man's first birth (is) from a mother; the second on binding on the girdle; the third on initiation for *yajña*. — Manu 2.169

> The twice-born man who not having gone over the Veda makes diligence in other matters, he with his progeny, even while living, speedily attains the condition of a śūdra. — Manu 2.168

The basic distinction between a śūdra and the *dvija* is that of *yajña*. The distinguishing feature of brāhmaṇa, kṣatriya and vaiśya are that they undertake *yajña*. In contrast, the śūdra undertakes no *yajña*. He lives in the present, for the present. He is, by definition, whose *vāsanā* is mere present *bhoga*.

The reference to brāhmaṇa attaining śūdrahood supports our view that it is the *vāsanā* that is the determinant of *varṇa*, not birth or profession. A brāhmaṇa who does not practise *svādhyāya* automatically becomes a śūdra because some minimum *bhoga* cannot be done away with. This *bhoga-vāsanā*, initially weak, is strengthened in the absence of a positive pull of *svādhyāya-vāsanā*.

> Gradually, through the loss of action, and by not seeing the brāhmaṇa, the following families of kṣatriya have reached the condition vṛṣalas among men. — Manu 10.43

This reinforces the importance of conscious action for the fulfilment of one's higher *vāsanā*s. Those who lose such action gradually degenerate.

> One duty the Lord assigned to a śūdra — service to those (*dvija*), without grudging. — Manu 1.91

The duty of the śūdra is strictly said to be to serve the *dvija*. In no case is he to oppose the *dvija*. The reason is that ever interested in the immediate consumption, given freedom, he would hit at the good of others as well as his own future:

> Indeed, an accumulation of wealth should not be made by a śūdra even (if he is) able (to do so), for a śūdra getting possession of wealth merely injures the brāhmaṇa. — Manu 10.129

If wealth were to be passed to the hands of those whose objective was mere *bhoga* and present consumption, no investment of effort and money for future benefit would take place and the society would collapse. It is seen that in socialist societies such as those led by Lenin and Mao, committed as they were to the ideal of "equality," the wealth of the nation was not equally distributed. The reason is simple. If the wealth was distributed, most people being śūdra, i.e., *bhoga-vāsanā* driven, would consume away the wealth. Thus, the hierarchy of the Communist Party, here serving as the *dvija*, took the distribution of consumption into its own hands. They prevented the people (śūdra) from accumulating wealth. The underlying principle is the same. Consumption has to be limited for the growth of society.

In the above verse, "injures the brāhmaṇa," is of significance. The śūdra is driven by *bhoga-vāsanā*. He may save for deferred consumption, but he does not "invest" in the sense of investing in a productive activity. Thus, he has little incentive to sustain the brāhmaṇa. On the other hand, the vaiśya and kṣatriya, driven by *vitta-vāsanā* and *loka-vāsanā* respectively, may seek the brāhmaṇa's guidance for their long-term good. They would sustain the brāhmaṇa. If the wealth of the society would be held by śūdra, then who would sustain the brāhmaṇa? Thus, wealth held by śūdra injures the brāhmaṇa.

The śūdra is not bothered. His focus is on immediate *bhoga*. The vaiśya cannot speak because his wealth is dependent on the good equation with the kṣatriya, howsoever tyrannous. It is only the brāhmaṇa who can speak. But, in order to speak, he has to live. He has to be sustained. Thus, a vaiśya-brāhmaṇa axis has to be forged. The vaiśya sustains the brāhmaṇa, who guides the entire society— dissenting kṣatriya, vaiśya and śūdra alike — to resist the tyranny of the king.

THE CONTRADICTION OF DEMOCRACY

Democracy assumes that the "people" — śūdra and vaiśya, in the main — will be able to restrain the political power in the interests of *dharma.* This is not possible because the śūdra, seeking *bhoga* and security, and the vaiśya, seeking wealth, are subservient to kṣatriya in their own personal lives. It is not possible for the dependent to control one whom he depends upon.

Therefore, *Manu-Smṛti* places the entire burden of controlling the kṣatriya upon the *svādhyāya*-seeking brāhmaṇa. He, uninterested in *bhoga,* wealth and power, can alone discriminate between the good and the bad kṣatriya and act against him.

The difficulty with the "civil society" — NGOs, Press, Judiciary, Artists and Writers — is that these are professions — not *varṇa.* These are means of livelihood. One can have a brāhmaṇa NGO and a śūdra NGO. The former can indeed control the kṣatriya while the latter cannot. Likewise, a vaiśya journalist, judge, artist or writer, cannot control the kṣatriya. They would be easily bought by the kṣatriya as their *vāsanā*s can be fulfilled by serving an *adhārmic* kṣatriya.

This, of course, does not apply to the control of kṣatriya of lower *śreṇī* (or the government bureaucracy) by the king.

> He should of himself ever visit all those (chiefs, and) discover their behaviour in (their) provinces by his spies.
>
> For those servants appointed by the king for protection (are) mostly takers of property of others (and) cheats; from them he should protect these people.
>
> — Manu 7.122-123

The problem of kṣatriya tyranny occurs at two levels. First is the tyranny of the king himself. This can be contained by a brāhmaṇa-vaiśya axis. The second level is the tyranny of the lower state bureaucracy.

It is the duty of the king to ensure in a top-down fashion that the state bureaucracy does not become oppressive. In this function — of a dhārmic higher kṣatriya controlling the excesses of the adhārmic lower kṣatriya — he may well use the "civil society" — NGOs, Human Rights Commissions, Judiciary, etc., as his "spies." For example, the judiciary often intervenes in a *habeas corpus* petition to save a person whose life is threatened by tyrannous policemen. Here the judge too is an organ of the state who has been appointed by the President of India. Thus one organ of the state, working in a top-down manner, protects the "people" from another organ of the state, the "cheats" who too have been appointed by the king.

A judge cannot, however, control an adhārmic kṣatriya himself because he owes his own livelihood to that same kṣatriya. We so often see that towards retirement the judges become pro-government because their eyes are fixed on the post-retirement appointments in Inquiry Commissions. How can we expect such judges to restrain the kṣatriya?

Varṇa Dharma

BRĀHMAṆA: VOLUNTARY POVERTY

> Let a wise man, like a driver of horses; exert diligence in restraint of his senses straying among sensual objects.
>
> — Manu 2.88

The basic purpose of life is to work out one's innermost *vāsanās*. The main obstruction to this is that the conscious mind and senses are ever attracted by newer pleasures. As a result, the inner *vāsanās* get pushed back into the unconscious. Mind keeps on acquiring new *vāsanās*, if successful, fulfilling them, and in the process only returning back to the starting point.

This is explained well by Tagore. The purpose of this human life, according to him, is not mere consumption and yet more consumption. He compares material consumption to the cooking of food:

> The purpose of burning wood is not an end in itself. Its meaning arises in the food that is cooked. . . . Progress has come to mean to go on walking without ever reaching the home.
>
> — Tagore 1969:32, 33

Thus, mere increased consumption or improved standard of living was not the objective of life. Tagore draws a distinction between the "natural" and "artificial" desires (or *vāsanās*). The requirements of the body are called natural *vāsanās*. The necessities of life — food, etc., — have to be acquired and the needs fulfilled. However, he says:

> We have taken such pleasures beyond their natural limits. We have started feeding the palate with a variety of things. It was difficult enough to fulfil the

> natural needs; the additional burden of unnecessary things has made life yet more painful. — Tagore 1969: 37

In essence, Tagore advocates that the material *vāsanā*s be contained to the natural necessities. The unending pursuit of material progress is meaningless. Thus also *Manu-Smṛti* says that one must restrain his senses from straying among sensual objects.

The kṣatriya, vaiśya and śūdra, by definition having the *vāsanā*s of *loka*, *vitta* and *bhoga*, are advised to fulfil their dominant *vāsanā*s. If they allow their mind to stray, they would get distracted in the fulfilment of yet newly acquired *vāsanā*s leaving their inner *vāsanā*s unfulfilled.

Let us say A, a vaiśya, has *vitta-vāsanā*. He is running a shop. He attends a function organized by the trader's association to felicitate the newly elected MP. He allows his senses to stray. He begins to harbour thoughts about becoming an MP himself and being the centre of attention. So he starts taking active interest in the political affairs of the area. He indeed becomes an MP. What is the net result? His *vitta-vāsanā* is not yet fulfilled. He acquired *loka-vāsanā* and fulfilled it. In the words of Tagore, he kept on cooking without ever eating.

Worse still, deep inside him somewhere the desire of wealth remained. So he would start using his position as an MP to make money. That would bring him into a dilemma. For example, if his workers were to strike, what would he do? If he suppressed them through his access to government machinery, his votes would be hit. If he conceded their demands, his business would be hit. No matter what he did he would invariably be in trouble.

It is here that *varṇa dharma* is helpful. If he was conscious of his Vaiśya *varṇa*, then he would have said to himself, "no, my *dharma* is to earn money and not to contest elections." In thinking so he would have prevented the acquisition of *loka-vāsanā* and the entirely unnecessary distraction of becoming an MP. Thus, once one has self-determined his dominant inner *vāsanā*, and thereby his *varṇa*, he must restrain his senses from the acquisition of newer *vāsanā*s and stick to his *varṇa dharma* — i.e., the fulfiling of his self-determined dominant *vāsanā*.

> Do much as one can, one should never at any time neglect the *yajña* to *ṛṣi*s, *devatā*s, animals, men and the pitṛs. — Manu 4.21

Yajña is an act of giving up present consumption for future. One has to give up consumption, not production. For, if production itself is given up then society collapses and evolution of all individuals stops. A vaiśya must continue to earn but do *yajña*. If he stops earning then he does not employ workmen and they do not get their *bhoga*.

The obvious next question is *yajña* for what? Thus, *Manu-Smṛti* replies, use your earnings (of wealth or power) for the *ṛṣi*s (who are brāhmaṇa), *devatā*s (i.e., the elements of nature such as wind, water, etc.), animals (feeding birds, fish, etc., so that they evolve too), men (the poor) and *pitṛ*s (respect to the ancestors whose genetic imprints of *vāsanā*s we carry).[2] A vaiśya must use his wealth not for own consumption but for these purposes. The kṣatriya must use his power to protect these. In doing so, they promote the social good while not themselves falling into the trap of acquisition of new *vāsanā*s.

> Some people, who understand the rules of offerings, not performing those sacrifices, ever sacrifice in their own organ of senses alone.
>
> Some sacrifice breath in speech, and ever again (sacrifice) speech in breath, seeing the imperishable result of a sacrifice in (their) speech and breath.
>
> Other brāhmaṇa ever sacrifices with those sacrifices by knowledge alone, seeing by the eye of knowledge that the doing of them is based on knowledge.
>
> — Manu 4.22-24

The basic task is the fulfilment of dominant *vāsanā*s and progressing towards the fulfilment of deeper and yet deeper *vāsanā*s. This process requires a combination of thought and action — praxis. If one has the *bhoga-vāsanā* of eating *rasagullā*s, its fulfilment would require both — eating some *rasagullā*s as well as reflecting on the futility of endlessly eating them. The eating of *rasagullā*s gives happiness because it conforms to what the *antaḥkaraṇa* seeks. But *antaḥkaraṇa* seeks not only *rasagullā*s but also cars. The problem is that if one spends his whole life enjoying *rasagullā*s, then he is deprived of the happiness of driving cars. Thus, one has to progress from one *vāsanā* to another, from one level of happiness to another yet deeper one.

It is possible that one may be able to fulfil his *vāsanā* by eating just one *rasagullā*. He may think, "Oh, this is what it tastes like. But I have tasted jaggery and sugar and many other sweets. It is just like them." So thinking, he can fulfil his *vāsanā* of *rasagullā* in just one small action.

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[2] This would mean, for example, spending for air pollution control (*yajña* to wind *devatā*) and construction of *tālāba* (*yajña* to water *devatā*).

Another may require the setting up a *rasagullā* factory or becoming the President of Rasagulla Manufacturer's Association to fulfil the same *vāsanā*. Only when he has seen, tasted and sold *rasagullā*s for 40 years, he might get fulfilled. It depends upon how much thought process goes into the meaning of *rasagullā*. This is called sacrificing "in their organ of senses alone." By investing one's mind in training the sense of tongue to realize the futility of eating *rasagullā*s, one overcomes that *vāsanā*.

If we take this process backward, one can fulfil the *vāsanā* of *rasagullā* without consuming even one. If one perceives a *vāsanā* for *rasagullā*, one may think, "Oh, it is but another food after all. I have tasted apples, apricots, rotis, gourds and tomatoes. Well, the *rasagullā* will have some taste like that. What is the point of tasting it? Let us forget it. It is just another taste." If one so thinks, one can fulfil the *rasagullā vāsanā* without eating a single *rasagullā*.

The spiritual dimension of *yajña* is the *giving up* of present consumption. In "giving up" one restrains his senses. One who recognizes that the object of *yajña* is to give up and restrain senses may restrain the senses directly without requiring him to go through the process of physical *yajña*. A kṣatriya restrains his senses by curtailing his time in his harem and devoting himself to fighting battles. If he could directly restrain his senses then what is the necessity of the harem or the battle?

Thus, those who understand that the object of *yajña* is to restrain the senses, may do so directly, without going through the cumbersome route of performing physical *yajña* of battles or investment.

> An able brāhmaṇa who has returned home (from his teacher's) must never anyhow waste with hunger; he must never wear worn-out clothes if he has property.
>
> — Manu 4.34

The objective of a brāhmaṇa is to overcome his inner *vāsanā*s. By forcibly emaciating oneself, he uses his energy in repressing the moderate needs to which one is habituated. On the one hand this repression is indeed "giving up" of senses. It gives one a sense of command over one's senses. However, this command is attained by expenditure of mental energies. The need for moderate livelihood is not extinguished because it is not a *vāsanā*. Just as one cannot give up breathing, so also the moderate needs of the body. When repressed, such needs push upwards to assert themselves and the mind pushes them back. This constant battle builds up the inner pressure for assertion of those moderate *vāsanā*s. It does not lead to *svādhyāya* and equanimity.

Therefore, such emaciation is to be avoided.

> Now one may live by *ṛta* and *amṛta*, or by *mṛta* and *pramṛta*, or even by *satyanṛta*; never at any time by *cvavṛtti*.
>
> *Ṛta* (truth) is to be understood as living by gleaning; *amṛta* (undying) is (what is given) unasked, but *mṛta* (dead) is alms begged; agriculture is *pramṛta* (dead).
>
> *Satyanṛta* (truth and lying) is trading; even by that also one lives. Service is termed *cvavṛtti* (dog's livelihood), therefore one should avoid that.
>
> — Manu 4.4-7

Practice of agriculture and trading is acceptable as a means of brāhmaṇa's livelihood although less desirable. The main distinction between a vaiśya practising agriculture and a brāhmaṇa doing so is the objective. While a vaiśya practises agriculture to accumulate as much wealth as he can, a brāhmaṇa practises it as a means of livelihood in order that he can progress towards overcoming his inner *vāsanās*. In order to ascertain whether a particular farmer is a brāhmaṇa, vaiśya or śūdra, one has to examine his objective of engaging in that profession — whether it is to secure minimal livelihood, accumulate wealth or indulge in sensual pleasures.

As a corollary, a kṣatriya who fights battles in order to overcome his inner *loka-vāsanā* becomes a brāhmaṇa. As soon as the objective of the battle becomes overcoming of *vāsanās* rather than acquiring power for its own sake, the kṣatriya is no longer a kṣatriya.

The brāhmaṇa is strictly required not to accept employment — "dog's livelihood." The basic fact of any employment is that the employee must mortgage his mind, or at least a part of it, to the employer. This mortgaging directly hits at the objective of *svādhyāya* which requires freedom of the mind to wander and explore one's own inner depth. Living by wages is not acceptable even for teaching and other professions otherwise acceptable for the brāhmaṇa:

> A brāhmaṇa must be censured for taking wages for the performance of dāna, *yajña* or teaching. — Manu 10.109
>
> One who teaches for hire, also one who is taught for hire . . . a good brāhmaṇa (who is) wise should reject for both (ceremonies). — Manu 3.156-167

There is a distinction between money offered as an honour or gift and money demanded as payment of service. If a brāhmaṇa is given money by a student as a mark of gratitude, presumably after the teaching is complete, it does not influence the mind of the brāhmaṇa during the teaching. It does not make the brāhmaṇa bend to the wishes of the pupil in order to gain the gratitude. Thus any employment is not acceptable for a brāhmaṇa.

> One may have grain for three years or for one year, or for three days, or not have enough for the next day.
>
> Now of these four householder brāhmaṇa, the last in order is to be known as the better by law he has most overcome the world. — Manu 4.7-8

The brāhmaṇa does not overcome his worldly requirements instantly. This overcoming is an arduous process. Living moderately by whatever means most accessible to him (other than employment of any kind), he must practise as much voluntary poverty as he can. By expiating his material *vāsanā*s and learning to live with minimal material wealth, his mind is increasingly intuned to his inner self. He can then recognize his remaining *vāsanā*s, and by action or meditation, fulfil them.

> He who can claim to be a brāhmaṇa merely on account of his birth, or he only calls himself a brāhmaṇa, may be, if desired, the declarer of law for the king, but a śūdra never. — Manu 8.20

The term śūdra used in the above verse should be understood strictly in terms of *bhoga-vāsanā*. Thus, one seeking *bhoga*, if becomes the declarer of law, will be *bhoga*-dominant in his declarations. That would be harmful because social good requires *yajña*, not *bhoga*. A born-śūdra, if he has transcended his *bhoga*, *vitta* and *loka-vāsanā*s becomes a brāhmaṇa and can indeed declare the law.

Now remains the problem of a birth-based brāhmaṇa, i.e., one whose dominant *vāsanā* is other than *svādhyāya* but he has inherited the traditions of brāhmaṇa from his parents. Obviously he is the second best declarer of law. He declares only "if desired." This is to be explained by what Toynbee calls "petrification:"

> The life of Egyptian society during the second half of its existence was a kind of life-in-death. During these two supernumerary millennia, a civilization whose previous career had been so full of movement and of meaning lingered on inert and arrested. In fact it survived by becoming petrified.
>
> — Toynbee 1965:415

Often the society's wisdom looses its inner dynamism and survives only in rituals and outward rules or forms. Such a person, a non-brāhmaṇa by *varṇa* but born into a brāhmaṇa family, would carry these traditions mechanically. Thus, he could, "if desired," give a mechanical declaration of law. Such a declaration, though mechanical, would be better than one given by a *bhoga-vāsanā*-dominant person.

> Wise or unwise, the brāhmaṇa is a great divinity; just as fire is a great divinity, whether applied (to sacrifice) or not applied. — Manu 9.317

> Thus, even if engaged in all (kinds of) occupations (which are looked upon) with disfavour, the brāhmaṇa should (nonetheless) be reverenced at all times, for that divinity is the highest one. — Manu 9.319

A brāhmaṇa is defined as one pursuing *svādhyāya vāsanā*, practising voluntary poverty, etc. Thus, if a brāhmaṇa were to pursue a less compatible "lower" profession of, say, a trader, he should yet be respected.

Reference has already been made to a brāhmaṇa having been permitted to live "by the rules of duty (enjoined) for the kṣatriya" or even "by the means of life (enjoined) for the vaiśya" (Manu 10.81-82). However, one of a lower *varṇa* is prohibited from practising the profession of the higher *varṇas*:

> A kṣatriya may live by all these (means) when he has come to a need, but he should at no time meditate (living by) a higher occupation.
> — Manu 10.95

> If any man low in birth should, through greed, live by the occupation of the exalted, the king should banish him at once, after depriving him of his property.
> — Manu 10.96

A vaiśya teacher would leave a *vāsanā* of *vitta* in his students. A kṣatriya teacher would leave that of *loka*. Now if these both were to teach, the students would get into *varṇa saṅkara*.

Similarly, if a vaiśya were to rule, he would make a mess because his focus would be on extracting more money from the people rather than less.

Thus, the practice of a higher profession is fraught with dangers.

> Now one should consider a brāhmaṇa ten years old and a kṣatriya hundred years old as father and son; but of them brāhmaṇa (is) the father.
> — Manu 2.135

Again, this should be understood in the background that a brāhmaṇa's *vāsanā* was that of *svādhyāya*. A 10-year old boy with *svādhyāya-vāsanā* will at least think of the spiritual good of all, even if with little experience.

KṢATRIYA 1: WAR AS SELECTION FOR GOOD GOVERNANCE

> A king challenged by (kings of) equal, greater, (or) less power, giving protection to his people and remembering his duty as a kṣatriya, may not cease from battle.
>
> Never ceasing from battle, protection also of the people, (and) obedience to brāhmaṇa (are) the chief cause of bliss to kings.
>
> Kings who, desirous to slay one another, fight with their greatest strength in battles and without turning away, go to heaven. — Manu 7.87-89
>
> Thus a sovereign duly performing the duties which are enjoined by dharma, should seek to get possession of districts not (yet) possessed, and exercise protection over (those already) in his possession. — Manu 9.252

One basic problem of good governance is that of selection of the best person as a king. This was sought to be done by constant war between kings for dominance. Peace was at a discount and war at a premium. The most able kṣatriya won.

The caveat, however, was that war should be engaged in while protecting one's own population. Therefore, war should not lead to excesses of "covetous" imposition of taxes. The ability of a king lay in engaging in war along with low levels of taxation. (It was the brāhmaṇa's duty to ensure that this rule was complied with.)

If war were to be done with covetous appropriation, perhaps the cruel would win. However, with benign taxation, and while protecting the weak, only the best of kṣatriya could win. Thus, war led to the installation of the best kṣatriya and good governance.

There are two major objections. One, death involved in war. Two, the waste of wealth in war.

The problem of death is treated psychologically. The mountaineer who seeks to climb Mount Everest is fully cognizant of the dangers yet he willingly takes that risk and, often dies. A mercenary who fights a battle for money invites the risk of death voluntarily. The suicide bomber who assassinated

Rajiv Gandhi did so voluntarily, without a twitch. Or take Shaheed Bhagat Singh. He invited death and is worshipped as a martyr. Would we say that he should not have taken that risk?

It is a question of *vāsanā* fulfilment. All these people have a *vāsanā* which is so strong that they feel a sense of achievement deep within themselves even if it invites death. So is the case with war between kings. No one is compelling another to challenge a king for war. It is because one has a *vāsanā* of power that is so strong that one initiates a war and, often, dies. It is no different than Shaheed Bhagat Singh's heroism.

Thus, death is a risk that one takes. Perhaps, war was a safety valve for *loka-vāsanā*. If one felt the *vāsanā* of power, one could challenge the king and settle the matter one way or the other and progress towards fulfilment of his *loka-vāsanā* in either case.

Perhaps violence that we see in the society today, violence against women, against animals, against law abiding citizens, etc., is a product of closing this safety valve. There is no exit route available for physical fulfilment of *loka-vāsanā*. The violence that anyway exists in society was given a constructive direction by making it an input into the selection process of the king. Instead of the present meaningless violence in crime, there was allowed meaningful violence of war between kings.

Even if "death" were to be considered harmful, one has to weigh the social gain of good governance against the social cost of death-in-war. Bad governance may lead to much more death than ever conceivable in war, for example, from inadequate disinfection of ponds leading to the spread of malaria. The problem is that such death due to bad governance is not easily visible. In Manu's assessment, the lives saved by malaria control are greater than those lost from war.

What about destruction? And about the death of the innocent and their being prevented from the fulfilment of their *vāsanās*? The solution was a social consensus that the civilian population would be left untouched. Historian A.L. Basham, for example, reports that Megasthenes, the Greek ambassador to the court of Pāṭaliputra "states that peasants would till their fields peacefully even when a battle was raging nearby" (1954: 128).

True, there is "wastage" of wealth — metal spears, ammunition, bridges, etc. — which get destroyed. However, one has to weigh this loss against the gains for good governance. A king who imposes covetous taxes to feed a bloated bureaucracy may not appear to be as bad as it involves no "waste." Yet, one who imposes lower taxes for waging war is much better.

Indian government's defence expenditures were Rs. 35,620 crore in 1997-98 and non-defence expenditures were Rs. 409,573 crore (ES 1998: S-39). Say the country waged a war and spent Rs. 35,000 crore on it. If it leads to the selection of a better kṣatriya, a 10 per cent saving in non-defence expenditures would yield Rs. 40,957 crore of savings. The seemingly gigantic sum of Rs. 35,000 crore pales into insignificance when weighed against the potential savings. Thus, the costs of war have to be weighed against the gains for good governance.

> A fiftieth part of cattle and gold is to be taken by the king; the eighth part of grain, or the sixth or twelfth. — Manu 7.130

> A kṣatriya (king) who takes even a fourth part (as revenue), in (time of) distress, is released from all sin (in so doing) if he protects the people with all his might. — Manu 10.118

The kṣatriya may impose higher taxes in times of crisis but he has to be prepared to pay for the same with his life. This is the deterrent. (The check against excesses of the kṣatriya who imposed high taxes without affording protection was to be exercised by the brāhmaṇa. It is here that there was a historical failure in Indian history and the kings, therefore, indeed became tyrannous.)

> If the king did not untiringly inflict punishment on those to be punished, the stronger would roast the weak like fish on a spit. — Manu 7.20

This is the chief duty of the king internally — law and order and protection of the weak.

> When the king is besought by a creditor for the recovery of his property from a debtor, he should cause the property to be given to the creditor by the debtor, (after it has been) proved (by the former to be his). — Manu 8.47

The administration of commercial justice is important because it is the backbone of investment. If one is not certain about his ability to recover his money he will not lend or invest. He will, instead, put his wealth in cold storage. That, in turn, will lead to collapse of economy, revenue for the king and employment for the śūdra.

KṢATRIYA 2: PRESERVING VARṆĀŚRAMA DHARMA

> The king is created to ensure that each of the *varṇas* and *āśramas* are devoted to its own duty. — Manu 7.35

> Considering good and bad, *dharma* and *adharma*, let him examine the applicant parties in the light of their *varṇa*. — Manu 8.24

The world is full of attractions. A trader is attracted by the honour given to a politician. Thus, he gives up his trade to contest elections. In the process, he looses his wealth as well as happiness (because his dominant *vāsanā* is that of *vitta* which he now ignores).

A śūdra government servant, say a boiler inspector, is attracted by the money that the industrialist makes. So he sets up a trading company to buy and sell boilers from the various factories that he visits. Now, when he visits a factory, he uses his authority to deliberately fail a boiler so that the vaiśya would be forced to sell it. The result is a loss for the economy.

Myriads of such types of *inter-se* contradictions arise when a person belonging to one *varṇa* undertakes the works of another. The king has the responsibility to ensure that people pursue their own *vāsanās*. If a shopkeeper wanted to contest elections, the king would ask, why? He would be advised to close his shop, accept kṣatriya *dharma*, and then contest elections. Or if a boiler inspector applied for Sales Tax registration for his boiler trading company, he would be asked to resign first. Such rules can only be enforced by the state.

The legal system suggested by Manu is to first ascertain the *varṇa* of a person before assessing his crime. A youth who steals bread is to be dealt with differently than a retired government secretary who indulges in fake trade.

Varṇa- or *vāsanā*-based justice is an encouragement for evolution. For example:

> The king should make the vaiśya practise trade, gold-loaning, agriculture, and cattle-tending; and make the śūdra (act) as the slave of *dvija*.
>
> — Manu 8.410

If a person is vaiśya, i.e., his dominant *vāsanā* is that of accumulating wealth, the king must ensure that he practises trade, etc., and does not take, for example, to teaching. If a vaiśya were to teach, he would teach not what is good for the society but what is good for his income. Such teaching would do harm to the society.

VAIŚYA: INVESTMENT

> Now a vaiśya, after being initiated and having a married wife, should always be employed in gaining wealth and in tending cattle. — Manu 9.326

> He should expend the greatest effort in justly increasing his goods, and he should also take pains to bestow food on all creatures. — Manu 9.333

The duty of the vaiśya is to earn as much wealth as he can.

The kṣatriya is advised to extract low taxes. This leaves more surplus with the vaiśya. At the same time, the vaiśya is advised to restrain his senses. What, then, is he to use his wealth for, if not for consumption or enjoyment of the senses?

If one earns for *bhoga*, then one earns only so much as is necessary for *bhoga*, no more. Thereafter one has a tendency to abandon one's duties. The decline of Imperial Rome, for example, occurred because the nobility started indulging in *bhoga* instead of expanding the empire. They spent long hours eating and then vomiting so that they could eat more. Their power waned.

Similarly, if the vaiśya were to earn only as much as they could consume, then the best of vaiśya, the Ambanis and Birlas, would soon give up business. They would have accumulated enough. That would lead to the decline of economy as it happened in Rome.

Ever since the dawn of civilization there has been a continual widening of inequality. Millennia after millennia new technologies have increased the productivity of labour but the wages of toil have remained depressed. And many civilizations collapsed because they were unable to find a socially acceptable outlet for these profits. Ancient Egypt used them for building pyramids. It could not sustain because the people got nothing but suffering and chose to support the Hyskos invaders. Ancient Rome used them for importing tigers for their games. The people got nothing and they supported the barbarian invaders.

The Indian civilization, perhaps, is the exception. It has survived for five millennia. Somehow she was able to contain the social inequities despite economic inequality increasing. What did she do with her profits? Strangely, it was not by consumption but by its converse abstinence that India disposed off her profits. The duty of the vaiśya was to consume least and use his surplus for investment and charity.

The implication is that the vaiśya should earn and use profits for investment if possible and for charity if such opportunities did not exist. This had two consequences. The vaiśya invested not because he wanted to consume the profits but because it was his *dharma* to do so. He invested irrespective of the level of profits. This investment imparted vitality to the economy. And charity disposes off what he could not invest. It provided *bhoga* to the poor and assisted in their evolution. It was a poverty eradication programme. Charity in building great temples created jobs. And, since charity was done out of profits not state taxes, the cost of production was kept low and the economy continued to be globally competitive. Charity also helped the vaiśya develop detachment towards his possessions while increasing them.

ŚŪDRA: POVERTY AS A GOOD THING

> Even if freed by his master, the śūdra is not released from servitude; for this (servitude) is innate in him: who can take it from him? — Manu 8.414

> The king should make the śūdra (act) as the slave of *dvija*.
> — Manu 8.410

The śūdra is one who seeks *bhoga* — food, clothing, housing, etc., without wanting to take any risks. He is all consumption, totally bereft of *yajña* — investment of either mind or body or wealth for future benefits. His prime need is the security of consumption provided by another. He is advised to serve the *dvija* in order to procure the same.

The vaiśya, kṣatriya and brāhmaṇa undertake *yajña*. They invest their present mind, body and wealth for future salvation. They alone have the capacity to employ the śūdra. If the śūdra were to undertake the professions suitable for these *dvija* — study, warfare or investment he would certainly fail because his mind is ever pre-occupied with consumption. He cannot think of the future.

> One may not give advice to a śūdra. . . . And one may not teach him *dharma* and *vrata*. — Manu 4.80

The śūdra must be denied knowledge because he would use it not for the social good (by knowledge, warfare or investment). Instead he would use knowledge merely to increase his own consumption.

The vitality of the society rests on continued exertion for accumulation of wealth. Wealth sustains the brāhmaṇa in his pursuit of *svādhyāya*; wealth provides the money to the kṣatriya to protect the vaiśya and to engage in war. And, this wealth is obtained by investment. Thus, wealth must be denied to all those who do not invest:

> A brāhmaṇa may take possession of the goods of a śūdra with perfect peace of mind, for, since nothing at all belongs to this (śūdra) as his own, he is one whose property may be taken away by his master. — Manu 8.417
>
> One may take, as he wishes, three or two (articles) from a śūdra's house; for when sacrifices (are performed) a śūdra has no (right of) possession.
> — Manu 11.13

This should be read as follows: When a major investment is at stake, those who wastefully consume may be forcibly deprived of their goods for the success of the investment. This is like imposition of a special tax on consumption for the completion of a major irrigation project. The key provision is that this clause is invoked only for the purposes of completion of *yajña*.

This same fate is reserved for vaiśya as well:

> One should take that article, to ensure the success of the *yajña*, from the household (possessions) of any vaiśya who, (although) rich in cattle, does not perform *yajña* and does not drink *soma*. — Manu 11.12

The overriding consideration was that the society must go high on investment and low on consumption. Legal ownership should not stand in the way of such an enterprise.

THE PROBLEM OF DEGENERATION

There is nothing in *Manu-Smṛti* which sanctions despicable traditions like untouchability; or which sanctions the vulgar birth-based brāhmaṇa merrily pursuing their *bhoga*, *vitta* and *loka-vāsanā*. The basic problem has been that *varṇa*, which is really a *vāsanā*-determined category, was turned around and made into a birth-based category. Thus the respect that was actually due to a *kumhāra* pursuing *svādhyāya-vasanā* was misappropriated by a *pujārī* pursuing *bhoga-vāsanā*.

These degenerate *pujārī*s, etc., played a cruel joke on this country. They declared "brāhmaṇa" to be a *jāti*, or profession. And, further, they declared this *jāti* to be birth-based. Now "ultimately" this may be true. But then the privileges should also have been conferred "ultimately." Being the repositories of the scriptures, they claimed immediate privileges on the basis of their ultimate reality, which never really materialized.

The genuine brāhmaṇa, pursuing *svādhyāya-vāsanā* in their respective professions, was never invigorated in their brāhmaṇahood. They were not allowed to enter into professions such as teaching which would have been amenable to the fulfilment of their *svādhyāya-vāsanā*. The real brāhmaṇa was sidelined and the pseudo brāhmaṇa misappropriated their privileges.

The other side of this degeneration was untouchability. Now, no doubt, one acquires the characteristics of the company one keeps. Thus a *svādhyāya-vāsanā* pursuing brāhmaṇa should indeed avoid friendship with a *bhoga-vāsanā* pursuing śūdra. But, once the *vāsanā* was taken out and replaced with "birth," the system degenerated. A *svādhyāya-vāsanā* pursuing *kumhāra* was declared untouchable by a *bhoga-vāsanā* pursuing *pujārī*.

The task is to purge the degeneration and revive the inner core of *vāsanā*-based *varṇa-vyavasthā* for attaining good governance.

References

Basham, A.L., 1982, *The Wonder That Was India*, Delhi: Rupa & Co.

ES 1998, *Indian Economic Survey*, Government of India.

Kapp, K. William, and Lore L. Kapp, 1956, *History of Economic Thought: A Book of Readings*, New York: Barnes and Noble, 1956.

Manu-Smṛti, tr. Pt. Jwala Prasad Chaturvedi, Haridwar: Randhir Book Sales, 1992.

Manu, *Hindu Polity The* (*Ordinances of Manu*), tr. Arthur Coke Burnell, Ludhiana: Kalyani Publishers, 1972.

Mishan, E.J., 1964, *Welfare Economics*, New York: Random House.

Storr, Anthony, 1973, *Jung*, London: Fontana.

Tagore, Rabindranath, 1969, *Rashtriya Samaj-Jeevan ka Adarsh*, Lucknow: Rashtrdharma Pustak Prakashan.

Tiger, Lionel, and Robin Fox, 1971, *The Imperial Animal*, Dell, New York: Dell.

Toynbee, A.J., 1965, *A Study of History*, ed. D.C. Somervell, New York: Dell.

14

Agriculture and Trade in India

P. Shashi Rekha

INDIAN culture, rich and diverse as it is, subscribes to the idea that the Earth is the mother and the beings are her children.[1] It itself gives the milk to her progeny if it is kept happy. It is stated that king Pṛthu milked the earth.[2] Milking is an English term which cannot give the correct meaning of *duh* — to please. When pleased,[3] milk from the mother automatically flows for her child. The earth yields everything to her progeny if she is properly taken care of.

The four-fold division of *varṇa*s as depicted in *Puruṣa Sūkta* was a part of Indian culture.[4] The four *varṇa*s constitute the *puruṣa śarīra* that is the soceity. The two *varṇa*s brāhmaṇa and kṣatriya protect the country from divine and worldly miseries respectively whereas the *vaiśya*s and *śūdra*s provide the sustenance to all the people.

Therefore, it is stated by Kauṭilya that *vārtā* is an independent subject to be studied by the experts. According to him the main branches of knowledge are: (1) *āṇvīkṣikī*; (2) *trayī*; (3) *vārtā*, and (4) *daṇḍanīti*.[5] He explains the topics come under the view of these main branches. He says Sāṁkhya, Yoga and Lokāyata constitute *āṇvīkṣikī* (philosophy).[6] Three Vedas *Ṛk*, *Yajus*, and *Sāma* are known as *trayī*.[7] *Kṛṣi*, *paśupālana* and *vāṇijya* (agriculture, animal rearing and commerce and trade) constitute *vārtā*.[8] Law and administration come under the purview of *daṇḍanīti*.

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[1] *mātā pṛthvī, putroham pṛthivyāḥ* ।
— *Śatapatha Brāhmaṇa, Taittirīya Saṁhitā*, 1-5-3

[2] *yam sarva śailāḥ parikalpya vatsam, merau sthite dogdharidohadakṣe* ।
bhāsvanti ratnāni mahausadhīśca, pṛthūpadiṣṭām duduhurdharitrīm ॥
— *Kumārasambhava*, 1-2

[3] *udarakīrterudayam dayāvataḥ, praśāntabādham diśatobhirakṣayā* ।
svayam pradughesya guṇairupasnutā, vasūpamānasya vasūni medinī ॥
— *Kirātārjunīyam*, 1-18

[4] *Puruṣasūkta* — *Ṛgveda*, 10-90-12.

[5] *āṇvīkṣikī, trayī, vārtā, daṇḍanītiśceti vidyāḥ*, — *KA*, 1-2-1

[6] *sānkhyamyogo lokāyatamcetyāṇvīkṣikī*, — *KA*, 1-2-10

Thus, agriculture, animal rearing and commerce and trade are the constituents of one branch. The well-being of the country depends upon *vārtā*. Kauṭilya states that *koṣa purvā sarvārambhāḥ*[9] and this *koṣa* is enriched by *vārtā*.[10] About the resources Kauṭilya says *alabdha lābha, labdha parirakṣaṇa rakṣita vivardhana, vṛddhasya tirtheṣupratipādana* are the main duties of an administrator, which he will carry out with the knowledge of *daṇḍanīti*. Because, he says that the lokāyata the life of the people is dependent on it.[11]

Thus, the duty of an administrator does not end by acquiring things but they are to be conserved, developed and properly distributed. The development of goods is the duty of the vaiśya. Vaiśyas are known as *ūruvya, ūruja, ārya, vaiśya, bhūmispṛśaḥ, viśaḥ*.[12] As stated above, agriculture and trade were the two important professions in ancient India. There is a description of agriculture, drought, water deities, etc., in Veda. The Vṛtrāsura is stated to be the drought-demon who was destroyed by Indra. *Atharvaveda* offers salutations to the earth which yields food and various types of grains. "I salute to you O Earth! O wife of Parjanya! Nourished by the cloud, in whom are available *vrihī*, *yava* and these five crops."[13]

The *Mahābhāṣya* opines that "the abundance in agriculture is the development of the state." It is also stated by the same author that "It is a rich country where cows and grains are there."[14] It is the view of Vyāsa that those subjects will be happy who are engaged in agriculture and trade.[15]

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[7] *sāmargyajurvedāstrayastaryī* — *KA*, 1-3-1

[8] *kṛṣipāśupālye vaṇijyāca vārtā*, — *KA*, 1-4-1

[9] *KA*, 2-9-1.

[10] *dhānyapaśu hiraṇya kupya viṣti pradānādaupakārikī* — *KA*, 1-4-1

[11] *āṇvīkṣikī trayī vārtānām yogakṣema sādhano daṇḍaḥ* ।
tasyanītirdaṇḍanītiḥ, alabdha lābhartha, labdhaparirakṣaṇī ।
rakṣitavivardhanī, vṛddhasya tīrtheṣu pratipādanī ca, tasyāmāyattā lokayātra ॥
— *KA*, 1-4-3,4

[12] *viśantyāpaṇādikam — viśaḥ, viśa eva vaiśyaḥ* ।
kṣetrasamskārāya laṅgalādinā nityam bhūmim spṛśantīti — bhūmispṛṣah ॥
vṛttiḥ-prānadhāraṇā, sāsyāmastiti vārtā ।
striyām kṛṣi pāśupālyam vāṇijyam cetivṛttayaḥ ॥ — *Amarakoṣa — Vaiśyavarga* 1

[13] *yasyāmannam vrīhiyavau yasyām imāḥ pañca kṛṣṭayaḥ* ।
bhūmyai parjanyapatnyai namostu varṣamedase ॥ — *Atharveveda*, 12-1-42

[14] *arthavānayam deśa ucyate yasmin gavo sasyāni ca vartante — Mahābhāṣya*

Although the importance of agriculture is seldom explained in ancient treatises, the works dealing with the science of agriculture were hardly available in Sanskrit literature. Two treatises: (1) *Kṛṣiparāśara* (*KP*); (2) *Kāśyapīya Kṛṣi Sūkti* (*KKS*) have been recently edited which discuss agriculture to some extent. But it is rather amazing to note that the topics discussed in these two works are found presented in the *Arthaśāstra* of Kauṭilya as well. Not only these two, even *Vṛkṣāyurveda* consists of the matter almost close to that of *Arthaśāstra*. It is also noteworthy that some works are more systematic in arrangement and presentation. To name a few: *Arthaśāstra* of Kauṭilya, *Samarāṅgaṇa Sūtradhāra* of Bhoja, *Mānasollāsa* of Someśvara, etc.

According to *Samarāṅgaṇa Sūtradhāra* once the Earth being afraid of king Pṛthu approached Brahmā and requested him to save her from the king. At the same time Pṛthu came there and explained his problem that when he was about to milk the Earth she ran away. It was the responsibility of the king Pṛthu to milk the Earth and to provide all the things to his subjects. Having heard both sides, Brahmā advised the king to deal with her in a gentle manner so that she comes under his control and yields the fruits.[16] This gives an idea that the land should be properly utilized. At another place *Samarāṅgaṇa Sūtradhāra* describes the nature of different lands. They are : (1) *jāṅgala*; (2) *anūpa* and (3) *sādhāraṇa*. It is *jāṅgala* which is far away from water resources, filled with short and thorny trees, where the winds are hot and speedy and the clay is black in colour.[17]

The *anūpa* land is low lying, equipped with plenty of water, smooth land, water streams, fish and an icy place which is cool.[18] This is a better place to establish township. The medium land is that which is neither too hot nor too cold.[19] Again this three-fold land is of sixteen varieties. They are: (1) *baliśasvāminī*; (2) *bhogyā*; (3) *sīta*; (4) *gocararakṣiṇī*; (5) *apāśrayavatī*; (6) *kānta*; (7)

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15. *vārtāyam saṁśritastāta lokoyam sukhamedhate* — *Mbh*, Sabhā, 5-42
16. *iyam mahī mahīpala vidhivat pālitā satī* ।
sasyairutpādya niṣpannaistava bhogyā bhaviṣyati ॥ — *SSD*, 2-17 & 18
17. *dūrāmburirinaprayo hrasvakaṇṭakipādapaḥ* ।
rūkṣoṣṇa caṇḍapavanaḥ kṛṣaṇāmṛt teṣu jāṅgalaḥ ॥ — *SSD*, 8-3
18. *nimno bhūrijalaḥ snigdho bahumatsyāmiṣo himaḥ* ।
syādanupaḥ saritprāyuḥ snigdhochrita bahudrumaḥ ॥ — *SSD*, 8-4
19. *yaḥ punarnātiśītoṣṇaḥ syād deśadvayalakṣaṇah* ।
sa sādhāraṇa ityukto deśo deśaviśāradaiḥ ॥ — *SSD*, 8-5

khanimat; (8) *vaṇikprasadhitā*; (9) *dravyasampannā*; (10) *amitraghātinī*; (11) *aśreṇīpuruṣā*; (12) *śakyasalantā*; (13) *devamātṛkā*; (14) *dhānyā*; (15) *hastivanopetā*; (16) *surakṣā*.[20]

King Someśvara, the author of *Mānasollāsa* discusses the land which is comfortable for human beings: the land which is fertile, endowed with mines, has pastures, plenty of water, elephant-gardens, gardens, and has the natural resources of water like rivers.[21]

An attempt is made to take up these few works to discuss the agriculture and trade in ancient India. As far as trade is concerned, *Arthaśāstra* of Kauṭilya is a very systematic work. Therefore, the subject-matter of "trade" is based on *Arthaśāstra*.

Agriculture

India is known as *ratnagarbhā*. The meaning of *ratnagarbhā* thus stated in *KKS* — "The earth is known as *ratnagarbhā* because it bears the gems in its womb and also due to the grains, medicinal herbs, waters which spring from her."[22] The *KKS* also describes that the earth when merged in *pātāla* was uplifted by Viṣṇu who has taken the form of Varāha.[23] Profession and sustenance of the people in India are given a prominent place even in Vedic lore.

Vedic Gods Indra, Varuṇa, Parjanya, Marut, etc., are connected with rains. The *Akṣasūkta* glorifies agriculture while *Maṇḍūkasūkta* praises *maṇḍūka*s (frogs) as harbingers of the rainy season.[24] It appears that Kaśyapa was well acquainted with the knowledge of agriculture. He explains the varieties of land as follows:

> The land at some places merged in the sea, at another place it is clearly manifested. The manifested land is of many types — is endowed with *sāra* somewhere (fertility), *asāra* (non-fertility) at other places. At some places it is at low level, at some places it is at high level (ups and downs). It is divided by

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20. *SSD*, 8-7 to 9.

21. *sarva sasyavatī sevyā khanidraviṇagarbhiṇī* ।
paśavyā bahupāniyā puṇyavadbhirjanairyutā ॥

stamberamavanopetā bahūdyāna suśobhanā ।
bhūrnadīmātṛkā śāstā sarvadā dhāriṇī bhujām ॥ — *Mānāsollāsa*, 3.152-153

22. *ratnādidhāraṇāt garbhe ratnagarbhā vasundharā* ।
dhānyādīnamoṣadhinām jalānām prasavādapi ॥ — *KKS*, 11-12

23. *sasyodaya phalābhūmiḥ, dhṛtā vārāharūpiṇā* ।
viṣṇunā bhūṣṇunā pūrvam pātālajalapātataḥ ॥ — *KKS*, 9-10

24. *RV*, X. 34. 13 and VII. 103. 1-10.

> mountains at some places and rivers at some other places.[25] The land is fertile at some places due to mountain streams and rivers, sandy at other places, very hot at another place, barren at some place and destroyer of seeds elsewhere.[26]

Parāśara and Kaśyapa explain about agricultural land and agriculture while Kauṭilya explains the utilization of lands whatever type it may be. He deals with the topic in two chapters, in II *Adhikaraṇa Adhyakṣa Pracāra*. Agriculture, animal rearing and trade these three constitute *vārttā* which is one of the four main branches of knowledge, he says, the other three being *āṇvīkṣikī*, *trayī* and *daṇḍanīti*.[27]

The chapter *Janapada Niveśa* deals with the establishment of a city and allotment of lands to priests, preceptors, chaplains, the cultivated lands to the cultivators and non-cultivable to pastures.[28] The economic system is well established by Kauṭilya. According to him there should not be any non-utilization of land. If the lands remain uncultivated anywhere, they are to be allotted to those who are prepared to cultivate. This has to be strictly followed for the well-being of the country. The lands should not be taken back from those who make the unarable lands arable.[29] Agriculture, commerce and trade are the two sides of a coin. Therefore, ancient *ācārya*s have brought them under a common heading *vārtā* (*vartate anayā iti vārtā*). These are beneficial, because the agricultural produce, cattle, money, forest produce and the labour all depend on them. The king and his kingdom flourish if the above-mentioned are well maintained. Otherwise, the economic crisis would prevail and the king will lose his kingdom.[30] The financial stability and the management of army both are rooted in the "economic development." When these two are well maintained then the king can claim his powers on his own territory as well as on other's kingdom.[31]

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[25] *sārāsārasravayutā nimnāconnatarūpiṇī* ।
giribhi samvibhaktā ca nadībhiśca kvacitsthale ॥ — KKS, 29

[26] *nadena sārabhūmyā ca hradena mahatāpi ca* ।
kvacit śarkararūpa ca kvaciḍatyuṣṇarūpiṇī ।
kvacidūṣararūpā ca kvacidbijavināśīnī ॥ — KKS, 31

[27] *kṛṣipāśupālye vaṇijyā ca vārtā* — KA, 1-4-1

[28] KA, 2-1-7 to 10 and 2-2-1.

[29] *akṛṣatamāchidyānyebhyaḥ prayached* — KA, 2-1-10
karadebhyaḥ kṛtakṣetrāṇyaika puruṣikāṇi prayachet ॥
akṛtāni kartṛbhyo nādeyāni ॥— KA, 2-1-8, 9

[30] *kṛṣi pāśupālye vāṇijyā ca vārtā* ।
dhānyā paśuhiraṇyakupyaviṣṭi pradānadaupakarikī ॥ — KA, 1-4-1

The agricultre produce is known as *sītā*. It is thus defined by Kauṭilya — "The various kinds of grains brought in by the Director of Agriculture is *sītā*."[32]

In chapter *Sītādhyakṣa* the science of agriculture is explained with the details of the seasons for sowing, the process of sowing, etc.

It is well known that the fields are two types *devamātṛkā*, *adevamātṛkā*, (that depend on rain, and that do not depend on rain). The *KKS* mentions four types of lands: (1) *nadīmātṛkā*; (2) *kulya hadasritā*; (3) *jalāśayasritā*; (4) *mahidhra bṛgu pārśvabhāk*.[33] Even the rivers except Gaṅgā and Yamunā depend on rains only. Therefore, *KP* states that the agriculture and the human life depend on the rain.[34] Therefore, the knowledge of rainfall is a prerequisite to agriculture.[35]

'Year' is the king and cloud is the minister, says *KP*.[36] The statement reminds us of Kauṭilya's quotation *sahāyasādhyam rājatvam, cakramekam na vartate*. The coordination between the king and the minister is the foundation of a prosperous kingdom. The department of agriculture described in *Arthaśāstra* is a very big one where the help of experts in various sciences is required. It states that either the Director of Agriculture should be conversant with the science of agriculture or should have assistants who are well acquainted with the various subjects like *Sulba Śāstra* (finding underground water, meteorological knowledge) and *Vṛkṣāyurveda* the science of rearing plants.[37] With the help of these experts the Director should as per the season collect seeds of all kinds of grains, flowers, fruits, vegetables, bulbous roots, roots, creeper fruits, flax and cotton.[38] In this context R.P. Kangle opines that it is the duty of the Director of Agriculture to see that no land remains uncultivated.[39] Kangle also mentions the work *Kṛṣitantra* attributed to Parāśara.

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[31] *tayā svapakṣam parapakṣam ca vaśīkaroti kośadaṇḍābhyām* । — *KA*, 1-4-2

[32] *sītādhyakṣopanītaḥ sasyavarṇakaḥ sītā* । — *KA*, 2-15-2

[33] *KKS*, 113.

[34] *vṛṣṭimūlākṛṣiḥ sarvā vṛṣṭimūlam cajīvanam* । — *KP*, 10

[35] *tasmādidamprayatnena vṛṣṭijñānam samācaret* । — *KP*, 10

[36] *ato vatsararājānam mantriṇam meghameva ca* । — *KP*, 11

[37] *sītādhyakṣaḥ kṛṣitantra śulba vṛkṣāyurvedajñastajna sakhova* । — *KA*, 2-24-1

[38] *sarvadhānya puṣpaphalaśakakanda mūla vāllikya kṣauma kārpāsa bījāni yathākālam gṛhṇiyāt* । — *KA*, 2-24.1

[39] *KA*, by R.P. Kangle, vol. II., p. 148.

It is interesting to note that ploughing machines were used in the time of Kauṭilya. Kauṭilya says that the lands should be tilled many more times before the seeds are sown. The work should not be delayed on account of ploughing machines, bullocks and artisans, etc. *KKS* also advises to plough the land many times. According to it the land is to be ploughed at least six times in four-fold or five-fold manner.[40] The seeds are to be sown after the fields are properly ploughed. The process of sowing is described in *KA*, *KP* and *KKS* in detail.

The rain fall varies in accordance with the lands. According to Kauṭilya, the details are as follow:

> Sixteen *droṇa*s (about 32") of rain in dry lands,
> Twenty-four *droṇa*s (about 48") of rain in wet lands,
> Thirteen *droṇa*s in Aśmakas,
> Twenty-three *droṇa*s in Avantīs.
> No limit in *aparanta* and snowy regions and also in lands where the water is supplied through canals.

Agriculture should be carried out in conformity with the capacity of the fields and water supply. The views of Kauṭilya and Kaśyapa are similar in the case of judging the standard of crops. According to them the agriculturists should sow the seeds as per the season. The details are as follows:

> The *śāli*-rice, *vrīhī*-rice, *kodrava*, *sesamum*, *priyaṅgu* (Panic seeds), *dāraka*(?) and *varaka* (*Phaselous Tribolus*) are to be sown at the commencement of rainy season.[41]

The *mudga* (*Phaseolus mungo*), *māṣa*, (*Phaseolus radiatus*), and *śaibya* are to be sown in the middle of the season.[42]

Kusumbha (Safflower), *masūra* (*Ervum hirasutam*), *kulutha* (*Dolichos uniflorus*), *yava* (barley), *godhūma* (wheat), *kalāya* (leguminous seeds), *atasī* (linseed), and *surṣapa* (mustard) are to be sown last.[43]

"The sowing may be carried out as per the season" states Kauṭilya at the end of the above description.[44] It may mean that the seasons differ from region to region and soil to soil. The sowing should be in accordance with the region and soil. The *KKS* states the sowing system similar to that of Kauṭilya.[45]

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[40] *halena karṣayitvā ṣatdivasam tvadhikamtuvā . . . . caturdhā pañcadhāpi vā . . . .*
— *KKS*, 1-265

[41] *śālivrīhikodravatila priyaṅgu dārakavarakaḥpurvavāpāḥ* ׀ — *KA*, 2-24-12

[42] *mudgamāṣa śaibyaḥ madhyavāpaḥ* ׀ — *KA*, 2-24-13

[43] *kusumbha masūra, kulattha, yava, godhūma, kalāyātasī, sarṣapaḥ, paścādvāpāḥ* ׀
— *KA*, 2-24-14

Kauṭilya mentions the share of the king in the agricultural produce. This is very important for royal income. The entire chapter of *Sītādhyakṣa* describes the major classification of agricultural produce. This information is certainly of value for the agriculture in India even today.

It is the duty of the king to take care of the agricultural activity because he is the owner of land and water.[46]

Commerce and Trade

Commerce and trade is most important for the economic stability of any country. The person dealing with this is *gupta*, i.e., the protector of the kingdom.

As stated above, in *Puruṣa Sūkta* the place of vaiśya, the businessman is "thighs," that of the limb of stability. Therefore, the trade was taken care of well in ancient India. The director of trade should look into the affairs of trade. Agriculture was the main source of income in India. The income from agriculture according to Kauṭilya is four-fold: (1) *sītā*; (2) *krayimam*; (3) *parivartaka*; and (4) *prāmityaka*.[47]

The details are as follows:

1. *Sītā*: The revenue brought in the form of grains is called *sītā*. This is collected by *Sītādhyakṣa*. In olden days 1/6 of produce was collected as tax.[48]
2. The income procured by the sale of grains is called *krayimam*.[49]
3. The exchange of grains is *parivartaka* (Barter system).[50]

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[44] *yathaṛtuvaśena vā bījavāpaḥ* । — *KA*, 2-24-15

[45] *salyādikaḥ prathamaḥ, ādhakadiḥ dvitīyaḥ, śakasantatiḥ tṛtīyaḥ, latākusuma vargaḥ caturthaḥ* । — *KKS*, 354-55

[46] *rāja bhūmeḥ patirdṛṣṭaḥ śāstrajñairūdakaṣya ca* ।
tābhyāmanyattu yddravyam tatrasvāmyamkutumbinaḥ ॥
— T. Ganapatiśāstri on *KA*, 2-24

[47] *KA*, 2-15-1.

[48] *KA*, 2-15-2.

[49] *KA*, 2-15-4.

[50] *KA*, 2-15-5.

4. The borrowed grains are *prāmityaka*.[51]

The sale and purchase of all the products and commodities is discussed in the chapter *Paṇyādhyakṣa*. Kauṭilya is well aware of the fact that economical stability is most important for the country's welfare. Therefore, he has explained the measures that are to be taken for the economic growth of the country. He defines the term *artha* in which he explains how important *artha* is.[52] According to him *artha* is the sustenance of mankind. That which explains how to acquire *artha* and how to preserve it is *arthaśāstra*.

As finance is an important branch, an upright person should be appointed to look after it. Kauṭilya prescribed four types of tests to the persons who are to be taken as ministers, judges and heads of the departments. Those who get through the preliminaries are to be tested again by four special tests: (1) *dharmopadhā*; (2) *arthopadhā*; (3) *kāmopadhā*; and (4) *bhayopadhā*. *Arthopadhā* is a test to know the upright character. Those who get through this test are to be appointed in the department dealing with financial matters such as Income Tax, Commerce and Trade and Civil Supplies.[53] These officers should be well versed in *vārtā* (Commerce and Trade). Not only these officers but the king also should be well aquainted with the subject. For, according to Kauṭilya all the four *vidyā*s — *āṇvīkṣikī*, *trayī*, *vārtā* and *daṇḍanīti* are to be studied by the king. The king should learn the theory from *ācārya*s and should gain practical knowledge from the officers who are actually engaged in it.

Although there are many departments discussed in *Arthaśāstra* only the departments which come under the purview of commerce and trade are dealt with in this paper as the present discussion is connected with the quality control of the commodities and their sale and purchase.

Coming to the quality control of the commodities in *Arthaśāstra* it is very interesting to note that the author has not left even a single commodity undiscussed. It not only reveals the manifold knowledge of the author but focuses on the measures which are to be taken for the welfare of the subjects. There are two officers who are the higher authorities and hold the responsibility for the purchase and quality control of all the goods. *Sannidhāta* is an officer who is the director of finance. *Samaharta* is the commissioner of income tax. There are various departments under these two officers.

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[51] *KA*, 2-15-7.

[52] *manuṣyāṇām vṛttirarthaḥ, manuṣyavatī bhūmirityarthaḥ* I — *KA*, 15-1-1

[53] *arthopadhā* I — *KA*, 1-9-3

They are: (1) *koṣādhyakṣa* (superintendent of treasury); (2) *ākarādhyakṣa* (superintendent of mines); (3) *suvarṇādhyakṣa* (superintendent of gold); (4) *koṣṭhāgārādhyakṣa* (superintendent of store house); (5) *paṇyādhyakṣa* (superintendent of commerce); (6) *kupyādhyakṣa* (superintendent of forest produce); (7) *pautavādhyakṣa* (superintendent of weights and measures); (8) *sūtrādhyakṣa* (superintendent of weaving); (9) *sītādhyakṣa* (superintendent of agriculture); (10) *surādhyakṣa* (superintendent of liquor); (11) *sūnādhyakṣa* (superintendent of slaughter house); (12) *nāgarika* (superintendent of city). All these officers look after the affairs with the assistance of experts in the fields of their departments.

Not only the work but even the construction or maintenance of the houses, where the work is carried out are to be looked after by the *suvarṇādhyakṣa*. The store house, treasury house, house for forest produce, armoury and prison house are to be constructed under the supervision of *sannidhāta*. This denotes that even the store-houses of commodities are to be arranged in a perfect manner so that the employee's movement and the intake and delivery of the goods may be easily noticed.

According to Kauṭilya the goods are mainly classified into two — (1) *sāra* (goods of high value); (2) *phalgu* (goods of low value). The superintendent of treasure house is responsible for the quality control of the goods received in.[54] He should see that the goods old or new, of high value or of low value are to be accepted into treasury after their quality is ascertained by the experts. Similarly another officer, the superintendent of store-house should receive the goods after the quality is tested by the experts appointed to test them. The golden coins are to be received into treasury after they are tested by the examiner of coins.

According to Kauṭilya the quality of the goods cannot be maintained only by appointing experts to test the quality. It is possible only when the fraud is checked. Therefore he lays down punishments for fraud in the quality. These punishments are in accordance with the value of the items. Thus the fines for fraud are as follows:

> For bringing the counterfeit coins into the treasury the fine is a minimum of 48 *paṇas* to a maximum of 96 *paṇas*.

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[54] *kośādhyakṣaḥ kośapraveśyam ratnam sāram phalgu kupyam vā tajjātakaraṇadhiṣṭitaḥ pratigṛhṇīyāt* । — *KA*, 2-11-1

> For fraud in the case of goods of high value the fine is 200 to 500 *paṇas*.
>
> For bringing fraudulent gems the fine is 500 to 1000 *paṇas*.
>
> For fraud in the case of goods of low value the punishment is the restoration of same and a fine equal to its value.[55]

The commodities fall under three categories in accordance with the places of their origin. They are:

1. *Khanī*: Gold, silver, diamonds, pearls, corals, conch-shells, metals, salt, and other minerals extracted from plains and mountain slopes come under *khanī*.
2. *Setu*: Flower gardens, fruit-orchards, vegetable gardens and grains come under *setu* (the product of water).
3. *Kupya*: Game forests, timber forests, elephant forests, come under *kupya* (forest produce).

Rules Regarding Various Commodities

There are certain measures to be taken to maintain the quality of the goods. According to Kauṭilya the most important thing is the sale and purchase of the commodities. These should be carried out only in notified places. Otherwise, the employees engaged in the mines, mints, etc., may sell the things there itself by which the quality goods would not come into the market.

According to Kauṭilya, the sale of the commodities manufactured from mines should be centralized. The sale of these products in other than the notified places is an offence.[56] The manufacturers, sellers, and purchasers of such commodities outside the prescribed place are to be punished.

The manufacturing work which requires large outlay may be given on lease for a fixed number of shares or on a fixed rent.[57]

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[55] *tatra ratnopadhavuttamo daṇḍah kartuḥ kārayituś ca* ।
sāropadhau madhyamaḥ, pahlgukupyopadhau tacca tāvacca daṇḍah ॥ — *KA*, 2-5-7
uttamadaṇḍa — A fine of 500 to 1000 *paṇas*.
madhyamadaṇḍa — A fine of 200 to 500 *paṇas*.
pūrvadaṇḍa — A fine of 48 to 96 *paṇas*.

[56] *jātibhūmiṣu paṇyanāmavikrayaḥ* । — *KA*, 2-22-8

[57] *vyayakriyābhārikamākaram bhāgena prakrayeṇa vā dadyāt* ।
laghavikamatmana kārayet ॥ — *KA*, 2-12-29

COINS

Kauṭilya gives a detailed picture of minting the coins.[58] The proportion of various metals as prescribed for different denominations should be maintained. For example, to prepare a coin, silver and copper are to be mixed in certain proportions.

To mint a *rupya* — 4 *māṣa*s copper, 1 *māṣa*s (bean) of any of the following metals — tin, lead and black pigment. Remaining 11 *māṣa*s should be silver.

For not maintaining the prescribed quality, the manufacturers, sellers, purchasers and also the examiners should be punished with the highest fine of a 1000 *paṇa*s.

The same rules are applicable to the maufacture and sale of conch-shells, diamonds, precious stones, pearls, corals and salt.

GOLD

The Superintendent of Gold Workshop is to see that the quality of gold is maintained.

It is interesting to note that Kauṭilya describes the excellences of a touchstone used to test the quality of gold. According to him touchstones of Kaliṅga country with the colour of green beans are the excellent ones. Only such touchstones would be used in the sale and purchase of gold.

Even if the goods of best quality are purchased or sold, there is a problem with the workmen who spoil its quality. In fact, the artisans, traders, employees, etc., spoil the quality due to the lust for money. Therefore, to have a watch over such people is very important. A common man is not aware of all these things. He cannot go to the royal court for each injustice done by these people. Hence, it is the duty of the king himself to see that all such illegal deeds are checked properly. Kauṭilya lays down punishments for all such fraudulent deeds.

According to him for the artisan who spoils the work, the punishment is forfeiture of the wages and a fine double the wages.[59] The artisans should deliver (the items) in the same condition as per the quality and quantity as they receive the metal. In case of diminution in quality to the extent of one *māṣa* the fine is 48 to 96 *paṇa*s. For the decrease in quantity to the same extent the fine is 200 to 500 *paṇas*. In case of deceit in scales and weights the fine is from 500 to 1000 *paṇas*. The same fine should be imposed for fraud in an article manufactured.[60]

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[58] *KA*, 2-14.

[59] *kāryasyānyathākaraṇe vetananāśaḥ taddviguṇaśca daṇḍaḥ* I— *KA*, 4-1-3 & 2-12-29

Thus the new and old articles are to be tested. If any change is noticed in the appearance of an article, it should be tested and after ascertaining the information about fraud the fines should be imposed in accordance with the value of the article.[61]

TEXTILES

There is a superintendent of yarn who looks into the affairs of all types of looms and weaving work. Kauṭilya gives a detailed description of the yarn of good quality. Not only the quality of yarn, he also explains how many threads are to be used to maintain the quality of cloth. The quality of threads varies according to the type of the yarn (the details of all these are not given):

> In case of any decrease in the quality of threads the fine for the worker is deducting the wages. For, the decrease in quality spoils the quality of the goods.[62]

LIQUOR

Drinking liquor was not prohibited in Kauṭilya's time. But it was carried out in a systematic manner, keeping the welfare of the subjects in view. According to Kauṭilīya the liquor shops were situated on the outskirts of the city. The superintendent of liquor should see the quality is maintained in the preparation of liquor of various types. Kauṭilya gives a detailed description of preparation of various types of liquors. Hence, one who does not maintain the ratio in mixing various things as prescribed is to be punished.

To maintain the quality the price also should be specified. Therefore, the fresh liquor should not be sold for a low rate. The preparation of liquor should be carried out only by the licenced dealers. The sale of the liquor may be centralized or decentralized owing to the conditions of the state (country).

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60. *varṇahīne māṣāvare pūrvaḥ sāhasadaṇḍaḥ* ।
pramāṇahīne madhyamaḥ, tula pratimānopadhavuttamaḥ, kṛta bhāṇḍopadhau ca ॥
— *KA*, 2-14-6

61. *evem navam ca jīrṇam ca virūpam cāpi bhāṇḍakam* ।
parikṣetātyam caiṣām yathoddiṣṭam prakalpayet ॥ — *KA*, 2-14, concluding verse

62. *sūtrahrāse vetanahrāso dravyasārat* । — *KA*, 2-23-4

The preparation of liquor without licence is permitted only on festive occasions so that people may prepare for themselves at home on such occasions. This is like the preparation of *bhāṅg* on *Holī* festival.[63]

MEAT

Kauṭilya has focused even upon minor problems. The well-being of the subjects depends on their health and wealth. A common citizen cannot have these two unless the whole system is made perfect. No spoiled provisions should be allowed for sale. Until and unless strict rules are imposed and a fear of punishment is introduced such fraud cannot be put to an end.

Therefore, each wing should be properly checked. According to Kauṭilya the superintendent of slaughter-house should see that fresh meat is sold. The butchers should sell only fresh and boneless meat of beasts just killed. If any one sells bony-flesh he should pay a compensation equal to it. If there is any fraud in weighing, the punishment is the restoration of the same and a fine 8 times the diminution.[64] The flesh of the animals killed outside the slaughter-house, headless, legless and boneless fish, rotten fish and the flesh of the animals which have suddenly died should not be sold. For selling such flesh the fine is 12 *paṇa*s.

Punishing and Practices

The artisans and traders who cheat the people are considered as thieves by Kauṭilya. He says that the king should prevent thieves, who are not known as thieves, such as traders, artisans, actors, mendicants, jugglers and others from oppressing the people.[65]

In fact, Kauṭilya has dealt with the topics of fraud by traders, artisans, etc., in the chapter *Kantakaśodhana* as it comes under crime. An officer *Saṁsthādhyakṣa* (superintendent of marketplace) is the head of the sale in the market. He should allow the sale of old or new commodities only after ascertaining the ownership of the trader. He should also check the weights and measures. Kauṭilya also explains the standardization of cubical measures, weights and various types of balances. If there is deceit in cubical measures, weights, etc., the traders dealing with them are to be punished. For dealing

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63. *ṣaṭchatamanyatra kartṛkretṛ vikretṛṇām sthāpayet* । — *KA*, 2-25-1
64. *mṛgapaśūnāmanasthi māmsam sadyohatam vikrīṇīran* ।
asthimataḥ pratipātam dadyuḥ tulāhinehināṣṭaguṇam ॥ — *KA*, 2-26-6
65. *bhikṣukān kuhakānścānyān vārayeddeśapidanāt* । — *KA*, 4-1, concluding verse

the goods of low value as of high value the fine should be imposed on traders. For such deceit, in the case of timber, iron, brilliant stones, ropes, skins of animals, earthenware, threads, fibrous garments and woollen cloth the fine is eight times the value of the articles. If a trader sells the goods of low quality by showing a sample of high quality or by declaring the goods as products of one popular place which are actually not, the fine is the compensation for the loss and a fine of 54 *paṇa*s. The same punishment is for the adulteration of goods.[66]

The traders adulterate the things, only when there is no fear of punishment. Innocent people buy the adulterated goods as they do not know where to complain about their problems. Mere code of laws would not help the people. There should be punishments for the violation of such rules. Hence, Kauṭilya lays punishment for every cognizable offence of adulteration. According to him, for adulteration of grains, oils, alkalis, salts, scents and medicinal goods, the fine is 12 *paṇa*s. Only an authorized dealer should collect the goods from the superintendent for sale. If an unauthorized person collects the goods, the punishment for him is confiscation of the goods from him.[67]

Protection of Traders

But all this does not mean that Kauṭilya is not bothered about the businessmen who are also the citizens. The well-being of traders is thought of by Kauṭilya. According to him the traders may realize a profit of 5 per cent on local commodities and 10 per cent on foreign produce. The foreign traders were given some concession too. But extracting money or profit more than what is sanctioned is an offence. Such offences should be punished.[68]

In case of damage to the commodity, the traders should be given some compensation. Whenever there is an excessive supply of merchandize, the superintendent should centralize the sale and should not permit its sale at other places.

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[66] *sārabhāṇḍamityasārabhāṇḍam, tajjātamityatajjātam* ।
rādhāyuktamupādhiyuktam, samudga parivartimum vā ॥
vikrayādhānam nayato hīnamūlyam catuṣpañcaśatpaṇo daṇḍaḥ ॥ — *KA*, 4-2-8

[67] *tena dhānya paṇya nicayanścanujñātāḥ kuryuḥ* । — *KA*, 4-2-14

[68] *anujñātakrayādupari caiṣām svadeśīyānām paṇyanām pañcakam*
śatamājīvam sthāpayet, paradeśiyānām daśakam ॥ — *KA*, 4-2-15

In the case of commodities imported from a distant place and manufactured long ago the price should be fixed after calculating the investment, the production cost, duty, interest and other expenses.[69]

Thus according to Kauṭilya the price and quality of the goods are to be controlled. He has given many details about export and import but they are not discussed here.

The above discussion brings out that the king is responsible for the prosperity and adversity of the kingdom. It is his responsibility to appoint trustworthy assistants to help him in the administration. As stated in *Mahābhārata* the king is the maker of the age.[70] He should dedicate his life to the welfare of his subjects. A noble king finds his pleasure in the happiness of his subjects, he feels their well-being as his own well-being and there is nothing for him more valuable than his subjects.[71]

Abbreviations

KA — Kauṭilya's *Arthaśāstra*
KKS — *Kāśyapīyakṛṣisūktiḥ*
KP — *Kṛṣipārāśara*
Mbh. — *Mahābhārata*
SSD — *Samarāṅgaṇa Sūtradhāra* of Bhoja

References

Amarakośa, with "Gurubala Prabodhika" (Telugu), Hyderabad: Sri Jayalakshmi Publications, 1996.

Atharvaveda, ed. Devichand, Delhi: Munshiram Manoharlal Publishers, 1999.

Kāśyapīyakṛṣi-Sūkti, "*Agri-History Bulletin* 4," Asian Agri-History Foundation, Secunderabad, A.P.

Kauṭilya Arthaśāstra, ed. T. Ganapatishastri, Mumbai: Bharatiyavidya Prakashan, 1990.

Kirātārjunīyam of Mahākavi Bhāravi, Varanasi: Chaukhambha Sanskrit Sansthan, 1987.

Kumārasambhava of Kālīdāsa, ed. M.R. Kale, Delhi: Motilal Banaridass Publishers, 1995.

Mahābhārata, The Gita Press, Gorakhpur Edition.

Mahābhāṣya of Patañjali, Delhi: Motilal Banarsidass, 1995.

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[69] *paṇyopaghāte caiṣamanugraham kuryāt paṇyabahulyat* । — *KA*, 4-2-16

[70] *kālo vā kāraṇam rājñaḥ rājā vā kālakāraṇam* ।
iti te saṁśayo mābhūt rājā kālasya kāraṇam ॥ — *Mbh*, Śānti, 69-79

[71] *prajā sukhe sukham rājñaḥ prajānāmca hite hitam* ।
nātma priyam hitam rājñaḥ prajānāmtu priyam hitam ॥ — *KA*, 1-18-10

Mānasollāsa of Someśvara, vol. 1, Baroda: Gaekwad Oriental Series No. 28, 1967.

Ṛgveda-Saṁhitā, Vrajajivam Prachayabharati Granthmala, 84, Delhi: Chaukhambha Sanskrit Pratisthan, 1995.

Samarāṅgaṇa Sūtradhāra of Bhoja, Baroda: Gaekwad Oriental Series No. 25, 1966.

15

Treatment of Women in Indian Sociological Texts

With Special Reference to Manu-Smṛti

Chandrakala Padia

THERE is no doubt that feminist thought in India has emerged as one of the most creative and challenging disciplines in both literature and social sciences. It has certainly played a significant role in raising feminist consciousness, especially in the academic parlours of India. Nevertheless, it is also true that the feminist discourse in India has been more or less dominated by the Western feminist viewpoint overlooking India's own tradition and culture. There has never been a serious effort either to develop an indigenous methodology or to study the Indian sociological texts. Moreover, the feminist writers have not only accepted the Western constructs and assumptions but have often presented Indian texts in a fabricated manner so as to justify the adequacy of Western theory. Such an over emphasis on western models has had some serious consequences:

- It has led many feminist writers to subconsciously internalize demeaning images of the culture to the total neglect of its positive aspects.
- No effort has been made to read the texts in their specific socio-historico-cultural contexts.
- No recognition has been given to the learning of Sanskrit as a key to the understanding of the sociological texts resulting in their misrepresentation both by the Western and Indian scholars.
- Such lapses have led both common people and scholars to believe that women were all through given a subservient status in Indian sociological texts. None of the rights and liberties belonging to women in these texts has ever been mentioned.

- This has also led to the adoption of a methodology totally alien to the Indian soil. It has also resulted in projecting the multiple realities of India as isolated facts in utter indifference to the intricate fabric of relations that holds them as one.
- Finally, the West-oriented way of looking at problems relating to our women has undermined the significance of the Indian world-view and its distinctness from the Western world-view.

The purpose of the present paper is twofold; first, to argue why a serious study of Indian sociological texts is necessary; and, secondly, to give an account of some of those verses from the Dharmaśāstras, which clearly provide women with certain invaluable rights.

Now, to concentrate on the first objective, I begin by focusing attention on just one matter. The recent controversy over *satī prathā* is a good example to prove how the misreading of a single verse can lead to a serious distortion of interpretation and attitude. When in September 1987, one eighteen-year-old woman Roop Kanwar immolated herself in the name of *satī*, many modern Indian writers claimed that this *satī prathā* had the sanction of the Vedas. In support of this claim, they cited a hymn from the *Ṛgveda* which, they say, requires the widow to sit *within* the fire that burns her dead husband's body.

> इमा नारीरविधवाः सुपत्नीराञ्जनेन सर्पिषा सं विशन्तु।
> अनश्रवोऽनमीवाः सुरत्ना आ रोहन्तु जनयो योनिमग्रे॥[1]
>
> — *Ṛgveda*, X.18.7

This verse has been misread as "may these very good and holy women who are devoted to their husbands enter fire together with the body of the husband." But Vedic scholars later proved that this reading of the hymn is based on an orthographic mistake. The significant word is *agre* (in front), not *agne* (O, Agni). Even if we accept the reading *agne*, it would not mean "into the fire," for the word would still be in the vocative case and signify that *agni* was being addressed. The sense of "into the fire" would be yielded only if the word were in the dative case, which would be *agnaye*. P.V. Kane claims that the verse has been presented in the corrupt form because the interpreter probably read the last quarter of *Ṛgveda* (X.18.7) as *arohantu jalayonim-agne* (let them ascend the watery seat of origin, O, fire!) meaning "may fire be to them as cool as water." All other verses make it clear that either the hymn directs the widow to sit facing her dead husband; or that this *mantra* was not addressed to widows at all, but to ladies of the deceased man's household whose husbands were living. Such a view has been availed of in the *gṛhyasūtra* of *Āśvalāyana-Śrauta-Sūtra.*

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[1] "Let these unwidowed dames with noble husbands, adorned with fragrant balm and unguent, decked with fair jewels, tear-less, free from sorrow, pass unto their house."

However, the point that the disputed Ṛgvedic verse can never be interpreted as requiring the widow to die with her husband becomes all the more clear when one reads the very next verse. Here, the wife is being directed to quietly accept her loving husband's death, to arise from her husband's side, and to resume her place in the world:

> उदीर्ष्व नार्यभि जीवलोकं गतासुमेतमुप शेष एहि ।
> हस्तग्राभस्य दिधिषोस्तवेदं पत्युर्जनित्ववमभि सं बभूथ ॥[2]
>
> — *Ṛgveda,* X.18.8

Moreover, at many places in *Ṛgveda* there are references of widow remarriage. In the Xth book of *Ṛgveda*, there is a verse, which clearly refers to the custom, obtaining in the society freely, of a brother-in-law marrying his brother's widowed wife. This verse says:

> कुह स्विद्दोषा कुह वस्तोरश्विना कुहाभिपित्वं करतः कुहोषतुः ।
> को वां शयुत्रा विधवेव देवरं मर्यं न योषा कृणते सधस्य आ ॥
>
> — *Ṛgveda,* X.40.2

Unfortunately, it is a fact that the two verses of *Ṛgveda* cited above were mentioned in a distorted form in both *Brahma Purāṇa* and Aparārka, commentaries on the *Yājñavalkya-Smṛti.* The influential sixteenth-century scholar Raghunandana follows them in the error in his *Śuddhitattva.* Amazingly, the error, accepted without question, has influenced some of the greatest of nineteenth-century scholars, such as Max-Müller and H.H. Wilson, who concluded apparently on the basis of misreading the word *agre* as *agne* that *satī* was known during the Vedic period. P.V. Kane in his most eloquent commentary on *Dharmaśāstras* declares:

> There is no Vedic passage which can be cited as incontrovertibly referring to widow-burning as then current, nor is there any *mantra* which could be said

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[2] "Rise, come unto the world of life, O woman: come, he is lifeless by whose side thou liest. Wifehood with this thy husband was thy portion, who took thy hand and wooed thee as a lover." English tr., B.S. Upadhyay, *Women in Ṛgveda,* New Delhi: S. Chand. & Co., 1974, pp. 99 and 101.

> to have been repeated in very ancient times at such burning nor do the ancient *gṛhyasūtras* contain any direction prescribing the procedure of widow burning.
> — P.V. Kane, 1941: 630

Moreover, there is ample evidence to show that none of the *Dharmaśāstras* except *Viṣṇu Purāṇa* contain any reference to *satī*. *Manu-Smṛti* is silent on this issue. Moreover there have been many old commentators who were opposed to the practice of *satī*. Medhātithi in fact treats *satī prathā* as *adharma*. He argues that as Veda allows *śyenenibhicarana yajet* and yet it looks upon it as *adharma*; in the same manner even if some texts allow a woman to burn herself with the husband to attain heaven, this should actually be treated as *adharma*. Here, Medhātithi agrees with what the *Śruti* says, that one should not waste one's life for securing heavenly bliss which is fleeting and insignificant as compared to the supreme bliss of *Brahma-Jñāna*. This is why P.V. Kane claims:

> *Sati* was not in historic times a practice imposed by priests or men on unwilling women. It somehow grew and it is improper to say that men imposed it on women. It may be that examples of *sati* occurred because of the force of popular sentiment. It was first confined to kings and nobles, because the lot of the wives of conquered kings and warriors was most miserable in all countries as well as in India. Vengeance for the truculence of their husbands was wreaked on the poor wives by carrying them as captives and making them work as slaves.
> —P.V. Kane, 1941: 630

Now, let me turn to some other verses in *Manu-Smṛti*, on the basis of which this text has been labelled as an anti-feminist treatise. Some of the verses are often being quoted to demonstrate that Manu has given to women a subservient status. Let me cite verse no. 33 of Chapter IX which the critics often quote in support of their argument:

क्षेत्रभूता स्मृता नारी बीजभूतः स्मृतः पुमान्।
क्षेत्रबीजसमायोगात्सम्भवः सर्वदेहिनाम् ॥३३॥
— *Manu-Smṛti*, Ch.IX, verse 33

Kumkum Roy interprets this verse as follows:

> Here, the womb is equated with the field, in which men sow seed, offspring being determined by the nature of the latter, with the former conceived as a passive, supportive receptacle. The field, moreover, is ideally owned by a man, and, by extension, the produce of the field is his.
> — 1996: 17

Now, to my mind even a casual look at this above verse shows that here there is not the slightest hint of the categorical view that, by virtue of being a field woman is inferior to man. How, indeed, can we decide as to which of the two is of greater value — the seed or the field? The seed remains merely itself until it impregnates the field, so to say; and the field is a mere stretch or receptacle until it is fertilized by the seed. What is more, the very next verse (no. 34) of *Manu-Smṛti* makes it clear that, according to Manu, the seed or the male person is more important in some contexts; and the field (or women) in quite a few others. The verse runs like this:

विशिष्टं कुत्रचिद्बीजं स्त्रीयोनिस्त्वेव कुत्रचित्।
उभयं तु समं यत्र सा प्रसूतिः प्रशस्यते॥

— Ch. IX, verse 34

There is also the additional suggestion where the seed and the field alike contribute to the act of begetting or production, the maternity involved is commendable (Chandrakala Padia, 2002).

In fact, *Manu-Smṛti* has been written with a view to bring about a humane social order where both men and women have to follow a disciplined life for the sake of protecting the interests of the community. To this purpose, both have been assigned different roles in accordance with their distinct nature. To quote *Bharat Ratna* Bhagwan Das:

> Under Manu's scheme . . . [an] egoistic, competitive equality of man and woman is not contemplated. His ideal for the two is that of identity, not equality. Indeed, in a broader sense, such is his ideal for the whole human race. In Manu, we find no narrow parochialism, no provincialism, not even nationalism, but only Humanism, the organization, into one Joint Family, of all the types, all the families, races and sub-races, of the whole Human Race — or even still more, that wider same-sightedness which sees all the Kingdoms of Nature ever indissolubly linked into one continuous chain of World-order and World-process. . . . If, then, Manu's ideal is such for all the Human Race with all its widely divergent forms and types and colors and capacities, if he regards them all as organs of the same identical organism, how much more must his ideal be such for man and woman, spouse and spouse, husband and wife, within the same house. The two are regarded as supplementary halves of one whole. And, for the time the difference of sex lasts, the vocations of the two are accepted as different in the same way as the functions of the two halves of the one brain, of the two halves (the eye-balls) of the one organ of vision, of the two halves (the ears) of the one organ of audition, or, at most, of the head and heart in the same body, or of the intellect and the intuition (instinct, emotional sensitiveness, affectibility, are allied) in the same mind

> are different. Each half is as a sort of assistant, supplement, reserve of force for the other. — Bhagwan Das, 1935: 449-51

> The Manu and his assistants and subordinates are not . . . near-sighted. They look very far, before and after. Their practical politics are always dominated and governed by high ideals, by a complete theory of life, its origin, its end, its purpose. To their view, all activity not organically and consistently related to the well-ascertained and clearly defined objects of life is not practical but supremely unpractical. — Bhagwan Das, 1910: 10

If we want to understand Manu, we will have to look into Manu's own world-view. For him everyone must lead a life guided by *dharma*. *Dharma*, according to him, is that scheme, that network of the duty of each, which holds together all the children of Manu in organic cohesion and prevents them from falling apart in pieces, in ruin and destruction. Again, only that person can lead the life of *dharma* who is rooted in the *self*. To quote him:

सर्वमात्मनि सम्पश्येत्सच्चासच्च समाहितः।
सर्वं ह्यात्मनि संपश्यन्नाधर्मे कुरुते मनः॥
— Ch. XII, verse 118

> Let . . . man discriminate between the good and the evil, the right and the wrong, the true and the false, the real and the unreal, and so discriminating yet let him one-pointedly ever behold all in the Self, the passing as well as the lasting. He who beholdeth all in the Self, in himself, his mind strayeth not into sin.[3]

Manu categorically defines ten characteristics of *dharma*. To quote him:

धृतिः क्षमा दमोऽस्तेयं शौचमिन्द्रियनिग्रहः।
धीर्विद्या सत्यमक्रोधो दशकं धर्मलक्षणम्॥
— Ch. VI, verse 92

> Patience, forgiveness, self-control, probity, purity, self-restraint, reasonableness, learning, truth, freedom from anger — these ten are the marks of duty. By all the four Orders of all the twice-born should this tenfold *dharma* be served and followed diligently.

Again, Manu believes that a person is not only an individual among individuals but that he is also a family; further that he and his family do not stand alone, but in organic interdependence with other individuals and families; that is to say, he is not only an individual and a family but also a community, a society, a nation. Further, he realizes that his nation is interdependent with many other nations; so that ultimately a man is inseparable from the human race. To quote Manu, again:

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[3] Manu has repeated the same in the following verse:
आत्मैव देवताः सवः सर्वमात्मन्यवस्थितम्।
आत्मा हि जनयत्येषां कर्मयोगं शरीरिणाम्॥
— Ch. XII, verse 119

> अयं निजः परो नेति गणना लघुचेतसाम्।
> उदारचरितानां तु वसुधैव कुटुम्बकम्॥

"This one is my countryman; this other is a stranger" — so thinks the man of narrow mind and heart. The noble soul regards the whole wide world as kin. This makes it easier to clear Manu's concept of four-fold *varṇa*s. Manu has always been criticized for supporting *varṇa* system and ignoring the rights of *śūdra*s. Scholars here forget the fact that for Manu everyone by birth is a *śūdra*. See here the following:

> जन्मना जायते शूद्रः संस्काराद् द्विज उच्चयते।
> शूद्रेण हि समस्तावद्यावद्वेदे न जायते॥
>
> — Ch. II verse 72

Further, Manu makes it very clear that a person born out of a śūdra father can certainly enter into higher *varṇa* by his quality and conduct. To quote Manu:

> शुचिरूत्कृष्टशुश्रूर्मृदुवागनहंकृतः।
> ब्राह्मणाद्याश्रयो नित्यमुत्कृष्टांयातिमश्नुते॥
>
> — Ch. IX verse 335

> This four-fold division is merely a classification of four professions. Character and conduct alone determine the caste of a man. A person who is born as a śūdra can certainly enter into the higher *varṇa* by his efforts:

The spirit of individualism is throughout rejected in *Manu-Smṛti* in the context of every relationship. It is so refreshing to read the definition of man given by Manu:

> एतावानेव पुरूषो यज्जायात्मा प्रजेति हि।
> विप्राः प्राहुस्तथा तद्यो भर्ता सा स्मृताङ्गना॥
>
> — Ch. IX, verse 45

> The man is not the man alone, but the man, the woman, the child. The sages have declared that wife is the same as the husband. The house is not the home; wife is the home.

Since Manu believed in an interdepedent and mutually reinforcing social order, he has prescribed different kinds of education for both boys and girls. Both are different in nature, but complementary to each other. She sees with the heart; he with the head. (She is the true insight, of intuitive sympathy; his way is the way of arriving at reasoned conclusions. In respect of faithfulness, love, patience, suffering, and contentment she is, on the whole, superior to man.) This is the reason why Manu wants women to be particularly educated in hygiene dietetics and the fine arts. Dr. Bhagwan Das justifies Manu's scheme of education in the following words:

> Manu's ideal is gentle man and gentle woman each filling a distinct place in the domestic and social scheme; never entering into conflict with each other, but ever supplementing the qualities of each other and ever making life's way smoother for each other. And that this may be, he indicates different kinds of training for the two and not precisely the same.
>
> — Bhagwan Das, 1935: 462-63

Now turning to the second object of this paper, it can be unequivocally claimed that some very important rights were given to women to ensure their dignity in this world. Let me begin with her Right to Property, which was known as *strīdhana*.

If we consider the socio-cultural context of that time, we would be led to believe that, by and large, women enjoyed equal property rights to a great extent with that of men. Since women in general were confined to the homes and were allotted the important function of child-rearing and home-making, they were debarred from the property rights of the father if their own brothers were alive. But in case of her mother's death, she was the sole inheritor of the latter's property. Most of the *smṛtikāra* have categorically asserted that the transfer of *strīdhana* should be towards the women inheritors only. What is more, in all these cases, where man has no son or sons, the entire property *must* go to the women inheritors. This has been clearly asserted by Manu and others at several places. This *proves* that our ancient system of inheritance had more of a horizontal than vertical structure. Let me cite first those two verses of Yājñavalkya where he has clearly put forth the idea that the daughters will be given peference in case of a sonless father:

पत्नी दुहितरश्चैव पितरौ भ्रातरस्तथा।
तत्सुता गोत्रजा बन्धुशिष्यसब्रह्मचारिणः॥
एषामभावे पूर्वस्य धनभागुत्तरोत्तरः।

स्वर्यातस्य ह्यपुत्रस्य सर्ववर्णेष्वयं विधिः ॥[4]
— Yājñavalkya, II.135-136

The above verse clearly states that

> the lawfully wedded wife, the daughters and (the daughter's son), the parents, the brothers, their sons, *gotrajs* (agnatic kinsmen), *bandhu* (cognatic relation), a pupil, a fellow student, — on failure of each preceding one out of these each succeeding one is entitled to take the wealth of a man who is dead (lit. who has gone to heaven) and who leaves no male issue. This rule applies to all *varṇas*. — P.V. Kane, 1946: 701

Yājñavalkya and Viṣṇu among Smṛti writers were probably the first to clearly enunciate the rule that the wife was the foremost heir of a man dying without male issue. Bṛhaspati makes the wife the first heir of a sonless man and supports his opinion with reasons. He says:

> In the Veda and the doctrines of the Smṛtis and in popular usage the wife is declared to be half the body of the husband, equally sharing the consequences of good and evil acts of him. How can another obtain the property, while half the body (of the deceased) survives? Although a man's father, mother or relatives may be alive, the wife of a man dying without issue succeeds to his share. A wife dying before her husband takes away his sacred fires, i.e., she is cremated with the sacred Vedic fires, if he be an Agnihotrin; but when the husband dies before the wife, she takes his property, if she is chaste.[5]

Kātyāyana also declares that "the wife who is chaste takes the wealth of her husband."

Again, a text attributed to Vṛddha Manu says,

> The wife alone, being sonless and keeping the bed of her lord unsullied and leading a life of religious observances, may offer *piṇḍa* to her deceased

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4. आम्नाये स्मृतितन्त्रे च लोकाचारे च सूरिभिः। शरीरार्धं स्मृता जाया पुण्यापुण्यफले समा॥ यस्य नोपरता भार्या देहार्धं तस्य जीवति। जीवत्यर्धशरीरेऽर्थं कथमन्यः समाप्नुयात्॥ सकुल्यैर्विद्यमानैस्तु पितृभ्रातृसनाभिभिः। असुतस्य प्रमीतस्य पत्नी तद्भागहारिणी॥ पूर्वं मृता त्वग्निहोत्रं मृते भर्तरि तद्धनम्। विन्देत् पतिव्रता नारी धर्म एष सनातनः॥ Bṛhaspati. q. by Aparārka, pp. 740-41, Dāyabhāga, XI.1.2, pp. 149-50, Kullūka on Manu IX.187. Here the English version has been taken from P.V. Kane's *History of Dharmaśāstras*, vol. III, 1946 edn., p. 703.

5. अपुत्रा शयनं भर्तुः पालयन्ती व्रते स्थिता।
पत्न्येव दद्यात् तत्पिण्डं कृत्स्नमंशं लभेत च।

Vṛddha Manu quoted by Mitākṣarā on Yājñavalkya, II.135, Dāyabhāga, XI, 1.7, Vivadaratnakar, p. 589.

husband and take his entire estate.[6]

Even in *Manu-Smṛti*, Manu's preference for the daughter as the inheritor of property becomes very clear when he says:

> One's son is like one's self and one's daughter is equal to one's son; how can another person take the wealth (of the deceased) when she who is the very self (of the deceased) lives.[7]

Bṛhaspati declares,

> the wife is declared to be the inheritor of the husband's wealth and, in default of her, the daughter; the daughter, like a son, springs from the limbs of a man: how can another man inherit her father's property while she lives?[8]

भुर्तुर्धनहरी पत्नी तां विना दुहिता स्मृता।
अङ्गादङ्गात्सम्भवति पुत्रवद् दुहिता नृणाम्।
तस्मात्पितृधनं त्वन्यः कथं गृह्णीत मानवः।
— बृहस्पति

The most emphatic assertion comes from Prajāpati when he says that the king should punish as thieves those *sapiṇḍa*s and relatives that oppose or obstruct a widow in succeeding to her husband's estate.

तत्सपिण्डा बान्धवाश्च ये तस्याः परिपन्थिनः।
हिंस्युर्धनानि तान्राजा चौर्यदण्डेन शासयेत्॥
— प्रजापति

All the above quotes from different Hindu texts reveal that there was no dearth of principles made in favour of women as far as their rights were concerned. P.V. Kane has very rightly asserted:

> Hindu law does not favour the distribution of a deceased man's estate among his several relatives, as some other systems (like that of the Muslims) do. It gives the whole state to one heir or one class of heirs to the exclusion of all

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6. यथैवात्मा तथा पुत्रः पुत्रेण दुहिता समा।
तस्यामात्मनि तिष्ठन्त्यां कथमन्यो धनं हरेत्॥ १३०॥
Manu, Chapter IX, Verse 130, English version taken from P.V. Kane's *History of Dharmaśāstras.*

7. Bṛhaspati q. by Mitākṣarā on *Yājñavalkya Smṛti*, II.135, *Smṛticandrikā* II, p. 294, *Vivādaratnākara*, p. 591, (*S.B.E.* 33, p. 378, verse 55.56).

8. Prajāpati q. by *Smṛticandrikā* II, p. 294, *Vivādacintāmaṇi*, p. 151, English version from P.V. Kane's *History of Dharmaśāstras*, vol. III, 1946 edn., p. 712.

> others. It is greatly to the credit of the ancient Hindu law that it boldly gave all the separate property of a deceased male to women, viz., to the widow and after her to the daughter in preference to the man's own father or brother or nephew. — P.V. Kane, 1946: 711

It is not only the property, where women's specific rights have been laid down, there are many other areas where our *smṛtikāras* have inscribed golden moral laws for them. *Baudhāyana Dharmasūtra* condemns those men who blinded by greed give their daughters in marriage for a fee. Such men, he exhorts, are sinners and *sellers of their own selves* and perpetrators of great sin:

> शुल्केन ये प्रयच्छन्ति स्वसुतां लोभमोहिताः।
> आत्मविक्रयिणो पापा महाकिल्बिषकारकाः॥
> पतन्ति नरके घोरे घ्नन्ति चासप्तमं कुलम्।
>
> — *Baudhāyana Dharmasūtra, I.II.21-22*

Manu strikes a tender note about daughters when he says a father should not take even the smallest gratuity of his daughter; if he takes a gratuity through greed he becomes the seller of his child; when relations do not take for themselves wealth given by the bridegroom as gratuity (but hand it over to the girl) there is no sale (of the girl); the wealth so taken is for honouring the maidens and is only taken from the bridegroom out of loving concern for them. Fathers, brothers, husbands and brothers-in-law desiring their own welfare should honour women and should give them ornaments:

> यासां नाददते शुल्कं ज्ञातये न स विक्रयः।
> अर्हणं तत्कुमारीणामानृशंस्यं न केवलम्॥
> पितृभिर्भ्रातृभिश्चैताः पतिभिर्देवरैस्तथा।
> पूज्या भूषयितव्याश्च बहुकल्याणमीप्सुभिः॥
>
> — Manu, III, 54-55

Moreover, women's place in home has been highly eulogized by the *smṛtikāras*. Varāhmihira (sixth century CE *Bṛhat-Saṁhitā*) says that on women depend *dharma* and *artha* and from them man derives the pleasures of sense and the blessing of sons, and that they are the Lakṣmī (Goddess of prosperity) of the house and should always be given honour and wealth. He then condemns those who following the path of asceticism and other-worldliness proclaim the demerits of women and are silent about their virtues. He exhorts: "Tell me truly, what faults attributed to women have not been also practised by men? Men in their audacity treat women with contempt, but *they really* possess more virtues (than men)." Further "one's mother or one's wife is a woman; men owe their birth to women; O ungrateful wretches, how can happiness be your lot when you condemn them?" The *śāstra*s declare that both husband and wife are equally sinful if they prove faithless to the marriage vow; men care very little for that *śāstra* (while women do care); therefore women are superior to men. Oh! How great is the audacity of wicked men who heap abuse on women that are pure and blameless, like robbers who while themselves stealing raise a hue and cry, "stop, O thief!" . . . while women, in gratitude, clasp the corpses of their husbands and enter the fire.[9]

According to *Gautama Dharmasūtra* (V.23) and *Yājñavalkya* (I.105), "children, the daughters and sisters who are married and yet stay with their parents or brothers, pregnant women, unmarried daughters, guests and servants are to be fed before the master and mistress of the house."[10] *Manu* (III.114) and *Viṣṇu Dharmasūtra* (67.39) go a step further and say that the freshly married girls of the family, unmarried girls, pregnant women are to be fed even before the guests. Besides, all these no one can deny the fact that woman's role as mother has been highly eulogised by the Dharmaśāstras.[11]

Śanti-Parva (chap. 269) and the Ādi-Parva (chap. 37) highly eulogize the role of mother. In fact, in order to ascertain the position of women in Sanskrit literature one must follow the methodology of Pūrva-Mīmāṁsā which clearly lays down: "The purpose of a text censoring anything is not to merely censure, but to enjoin the performance of the opposite of what is censured and to praise such performance."[12] The object, therefore, of the *smṛtikāras*, that censured women was to inculcate the great value of chastity and obedience for women and not merely to paint a dark picture of them.[13]

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[9] यऽप्यङ्गनानां प्रवदन्ति दोषान्वैराग्यमार्गेण गुणान् विहाय।
ते दुर्जना मे मनसो वितर्कः सद्भाववाक्यानि न तानि तेषाम्॥
प्रब्रूत सत्यं कतरोऽङ्गनानां दोषस्तु यो नाचरितो मनुष्यैः।
धाष्टर्येन पुंभिः प्रमदा निरस्ता गुणाधिकास्ता मनुनात्र चोक्तम्॥
जाया वा स्याज्जनित्री वा स्यात्संभवः स्त्रीकृतो नृणाम्।
हे कृतघ्नास्तयोर्निन्दां कुर्वतां वः सुखम्॥
अहो धष्टर्यमसाधूनां निन्दतामनघाः स्त्रियः।
मुष्णतामिव चौराणां तिष्ठ चौरेति जल्पताम्॥
पुरूषश्चटुलानि कामिनीनां कुरूते यानि रहो न तानि पश्चात्।
सुकृतज्ञतयाङ्गना गतासूनवगुह्य प्रविशन्ति सप्तजिह्वम्॥
— *Bṛhat-Saṁhitā*, 74.5,6,11,15,16

[10] वरयित्वा तु यः कन्यां कश्चित्पुरूषो यदा।
रक्तगमांस्त्रीनतीत्य कन्यान्यं वरयेद्वरम्॥
Kātyāyan quoted by Aparārka, p. 94.
प्रदायं शुल्कं गच्छद्यः कन्यायाः स्त्रीधनं तथा।
धार्या सा वर्षमेकं तु देयान्यस्मै विधानतः॥

[11] See *Gautama-Dharmasūtra* II, 56; *Āpastamba-Dharmasūtra* I, 10, 28.9; *Baudhāyan-Dharmasūtra* II, 2.48; *Vaśiṣṭha-Dharmasūtra* 13.47; *Manu-Smṛti* II, 145; *Yājñavalkya-Smṛti* I.35.

References

Bose, Madakranta, *Sati in her edited Faces of the Feminine in Ancient, Medieval and Modern India*, New Delhi: Oxford University Press, 2000.

Das, Bhagwan, *The Science of Social Organization or the Laws of Manu in the Light of Atma-Vidya*, vol. II, Madras: The Theosophical Publishing House, 1935.

———, *The Science of Social Organization or the Laws of Manu*, vol. II revised edition, Madras: The Theosophical Publishing House, 1935.

———, *The Science of Social Organization or the Laws of Manu*, vol. I, Banaras and London: Theosophical Publishing House, 1910.

Gautama-Dharmasūtra.

Kane, P.V., *History of Dharmaśāstras*, vol. II, part I, Poona: Bhandarkar Oriental Research Institute, 1941.

Kane, P.V., *History of Dharmaśāstras*, vol. III, 1946.

Mitākṣarā's Yājñavalkya.

Padia, Chandrakala, "Feminism, Tradition and Modernity: An Essay in Relation to Manusmṛti" in her edited *Feminism Tradition and Modernity*, Shimla: Indian Institute of Advanced Studies, 2002.

Roy, Kumkum, "Where Women are Worshipped, there the Gods Rejoice: The Mirage of the Ancestress of the Hindu Woman" in Tanika Sarkar and Urvashi Butalia (ed.), *Women and the Hindu Right: A Collection of Essays*, New Delhi: Kali for Women, 1996.

Upadhyaya, B.S. (tr.), *Women in Ṛgveda*, New Delhi: S. Chand and Co., 1974.

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[12] Śabara on Jaimini, vol. II, 4, 21.

[13] See, P.V. Kane, vol. II, 1941, p. 581.

16

The Indian Noetic Tradition: The Dharmaśāstras

Bhāratiya Jñāna-Paramparā

Santosh Kumar Shukla

Dharma

In Indian thought the word *dharma* articulates the expression of a very extensive connotational range, which is rather too difficult to define. In the *Mahābhārata*, Vyāsa has said that *na dharmaha paripathena śākyo bhārata veditum,*[1] which means "Arjuna! *dharma* cannot be defined." This word *dharma* has been in use since the Vedic era. In many places in the Vedic texts, one encounters the usage of the word *dharma*. The word *dharman*, used nominally or adjectivally, is seen 56 times in the *Ṛgveda*. What is the real meaning of the word *dharma* in the Vedic language? This is very difficult to ascertain. This word *dharma*, according to the Pāṇinian grammar, derives from the root *dhṛn dharaṇe.*[2] In the *Ṛgveda*, the word *dharma* confirms the sense of *dharma* in the first *maṇḍala* —

> *trīṇi pada vicakrame viṣṇugopā adābhyaha,*
>
> At *dharmāṇi dhārayan.*[3]
> i.e, Viṣṇu, the Protector, upholding *dharma*, advanced three steps.

In the other *mantras* of the *Ṛgveda*, the word *dharma* has been used to signify the first or *prathama dharma* —

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* Translated from the original in Hindi/Sanskrit by Gautam Chakrabarti Ph.D. Scholar of Centre for Linguistics and English, JNU, New Delhi.

[1] *Śāntiparva*, 32/20.

[2] *Bhavādigaṇa*, 641.

[3] *Ṛgveda*, 1/22/18.

> *tāni dharmāṇi prathamānyāsan.*[4]
>
> i.e., those were the first Religion.
>
> *yajñena yajñam ayajanta devāstāni dharmāṇi prathamānyāsan.*[5]
>
> i.e., the Gods performed sacrifices with sacrifices, which were the first Religion.

In this manner, in other *mantras*, too, the word *dharma* has been used in the sense of *prathamāḥ dharmaḥ*.[6] In the other Vedas, there are many instances of the use of *dharma*.[7] In the *Brāhmaṇa* texts, the word *dharma* has been used in the sense of duty or work.[8] In the *Chāndogyopaniṣad*, an important qualification has been made in the significance of the word *dharma*, that it has three branches:

> *trayodharmaskandhāḥ yajñoha dhyāyanaṁ dānamiti.*[9]
>
> i.e., there are three shoulders of *dharma* — sacrificial ritual, study and charity.

Due to the extensive use of the word *dharma*, its meaning got changed from time to time, and, gradually, it has come to connote human privileges, duties and ties, introduce one to the laws of conduct, and enunciate the *varṇāśrama dharma*. In the *Taittiriyopaniṣad*, the word *dharma* enunciates this very sense — *satyaṁ vada dharmaṁ cara svādhyāyātmā pramadaḥ*[10] [i.e., speak the truth, practise *dharma*, do not neglect self-study]. This *śloka* — fragment from the *Gītā* — *svadharme nidhanaṁ śreyaḥ paradharmo bhayāvahaḥ*[11] [i.e., it is proper to assume the responsibilities of others] — also enunciates this very sense. In the Dharmaśāstras, too, the whole tradition moves from the *sūtra*-texts to the *nibandha* ones with the sense of duty. In the second *śloka* of the first *adhyāya* of the *Manu-Smṛti*, Manu has been asked to educate people about the *dharma* of the *varṇas* —

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[4] *Ibid.*, 1/164/43.

[5] *Ṛgveda*, 10/90/16.

[6] *Ibid.*, 3/17/1; 10/56/3; 3/3/1.

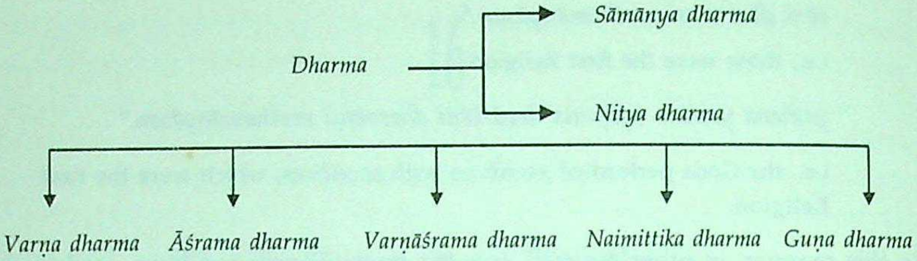
[7] *Vājasaneyī-Saṁhitā*, 2/1; 5/27; *Atharvaveda*, 9/9/17.

[8] *Aitareya-Brāhmaṇa*, 7/17.

[9] *Chāndogyopaniṣad*, 2/23.

[10] *Tattirīyopaniṣad*, 1/11.

[11] *Gītā*, 3/35.

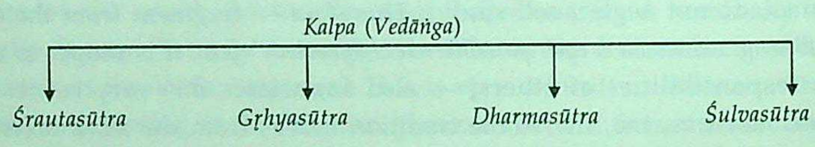

Sāmānya dharma
Dharma
Nitya dharma
Varṇa dharma
Āśrama dharma
Varṇāśrama dharma
Naimittika dharma
Guṇa dharma

> *bhagavān sarvavarṇānāṁ yathāvadanupūrvaśaḥ* ।
> *antarprabhāvāṇāṁ ca dharmānnovaktu marhasi.* ॥[12]

This *dharma* is divided in the Dharmaśāstras, into five identities.[13]

The Stream of Dharma/The Dhārmic Stream

In the Indian tradition, the chief means of knowing *dharma* are the Vedas. As the formulator of the *Gautamadharmasūtra*s has said — *vedo dharmamūlam*[14] [i.e., the Vedas lie at the root of *dharma*]. According to the *Manu-Smṛti*, there are four means of knowing *dharma* — (1) the Vedas, (2) the Smṛtis, (3) right and/or civilized conduct, and (4) that which is liked by the inner core of one's being. As has been written — *vedaḥ smṛtiḥ sadācāraḥ svasya ca priyamātmanaḥ etaccaturvidhaṁ dharmasya lakṣaṇam.*


Kalpa (Vedāṅga)
Śrautasūtra
Gṛhyasūtra
Dharmasūtra
Śulvasūtra

In the *Yajñavālkya-Smṛti*, too, *śruti*, right and/or civilized conduct, which one likes, and the will that results from proper resolution, these five have been said to constitute the stream of *dharma* —

> *śrutiḥ smṛtiḥ sadācāraḥ svasya ca priyamātmanaḥ* ।
> *samyak saṁkalpajaḥ kāmo dharmamūlamicam smṛtam* ॥[16]

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[12] *Manu-Smṛti.*

[13] *Gautamadharmasūtra*, 19/1; *Manu-Smṛti*, 2/25.

[14] *Ibid. (Gautamdharmasūtra)*, 1/2.

[15] *Manu-Smṛti*, 2/12.

[16] *Yājñavalkya-Smṛti*, 1/7.

The Noetic Heritage of the Dharmaśāstras

We can divide the entire tradition of the Dharmaśāstras into four parts — (1) the Dharmasūtra tradition, (2) the Arthaśāstra tradition, (3) the Smṛti tradition, (4) the exegetic tradition of the *ṭīkās*, *bhāṣyas*, and *nibandhas*.

A. THE DHARMASŪTRA TRADITION

The tradition of the Dharmasūtras commences with the *Vedāṅga* texts. In the *Ṣaḍvedāṅgas*, *Kalpa* is a chief *Vedāṅga*, which has, attached to it, four *sūtra*-texts, of which one is the *Dharmasūtra*.

The main focus of the Dharmasūtras is on the schematic discussion of conduct, law, rules and ritualistic institutes. The Dharmasūtras are in prose or a mixture of prose and verse. The subject-matter of the Dharmasūtras has been detailed in the *sūtra* mode. Nowadays, there are six available texts of the Dharmasūtras — (1) *Gautamadharmasūtra*, (2) *Baudhāyanadharmasūtra*, (3) *Āpastambadharmasūtra*, (4) *Vaśiṣṭhadharmasūtra*, (5) *Hiraṇyakeśidharmasūtra*, (6) *Viṣṇudharmasūtra*. Apart from these, 17 *Dharmasūtras* are referred to and excerpted from hither and thither in the *Dharmaśāstras*. The names of these *Dharmaśāstras* are — (1) *Hārītadharmasūtra*, (2) *Sekhadharmasūtra*, (3) *Mānavadharmasūtra*, (4) *Atridharmasūtra*, (5) *Uśanadharmasūtra*, (6) *Kaṇvadharmasūtra*, (7) *Kaśyapadharmasūtra*, (8) *Gārgyadharmasūtra*, (9) *Cyavanadharmasūtra*, (10) *Jātkarṇyadharmasūtra*, (11) *Devaladharmasūtra*, (12) *Paiṭhanasidharmasūtra*, (13) *Budhadharmasūtra*, (14) *Bṛhaspatidharmasūtra*, (15) *Bhāradvājadharmasūtra*, (16) *Śatatapadharmasūtra*, (17) *Sumantudharmasūtra*. It is in the tradition of the *Dharmasūtras* that we get a *dharmapraśna*. This has three questions/problematics that are divided into 41 *khaṇḍas* or sections. This is the only *dharmapraśna* to be published and available.

Amongst the available Dharmasūtra-texts, the most ancient is the *Gautamadharmasūtra*, which has 28 *adhyāyas*. Written in prose throughout, its subject-matter is very extensive. On this *sūtra*, Haradatta has written an important exegetical treatise, or *ṭīkā*, called *Mitākṣarā*. Vamanaputra Maskeri, Asahāya and Bhartṛyajña are known as its exegetists and commentators. The *Baudhayanadharmasūtra* is not available nowadays in its complete form. Divided into four *praśnas* and 39 *adhyāyas*, this important *Dharmasūtra* is extensive from the viewpoint of subject-matter An informative exegesis, by Govindai Swami (Govinda Swami), on the *Baudhāyanadharmasūtra* is available. The *Āpastambadharmasūtra* is divided into two *praśnas*, 22 *paṭalas*, and 61 *kaṇḍikās*. This *Dharmasūtra* has an available exegesis, named *Ujjvata*, written by Haradatta.

The *Hiraṇyakeśidharamsūtra* is divided into two *praśnas*, and an exegesis named *Ujjvata*, by Mahādeva Dīkṣita, is available for this. There are 36 *adhyāyas* in the *Vaśiṣṭhadharmasūtra*; however, there are major disagreements *vis-à-vis* the *adhyāyas* in this *Dharmasūtra*. An exegesis, titled *Vin modinī* is available for this *Dharmasūtra*. The *Viṣṇudharmasūtra* is divided into 100 *adhyāyas*, and has a very long index of contents. Nanda *Paṇḍita*'s exegesis, titled *Vaijayantī* is available for this *Dharmasūtra*.

B. THE ARTHAŚĀSTRA TRADITION

After the Dharmasūtras, there is the tradition of the *Arthaśāstra*. The necessity of the *Arthaśāstra*, and its tradition are made clear by the first sentence of the *Kauṭilya Arthaśāstra — pṛthiviyaḥ tabhe pālane ca yavantyanthastrāṇi pūrvacaryaiḥ prasthāpitāni prayasastāni sne hṛtyaikamidamarthaśāstram kṛtam*[17] [i.e., this one *Arthaśāstra* has been compiled by previous scholars or *ācārya*s for the integration and maintenance of the Earth]. It is said in the *Mitākṣarā*, the exegetical work for the *Yājñavālkya-Smṛti*, that the name *Arthaśāstra* is given to a text that discusses the subject of politics within the framework of the Dharmśāstras — *dharmaśāstrāntargatameva rājanītilakṣaṇam artha śāstramidam vivakṣitam*.[18]

Today within the *Arthaśāstra* tradition, only the *Kauṭilya Arthaśāstra* is available. There is no difference between *Dharmaśāstra* and *Arthaśāstra*; and in reality the *Arthaśāstra* is a branch of the Dharmaśāstras. The *Arthaśāstra* is divided into 15 *adhikaraṇa*s, 150 *adhyāya*s and 180 *viṣaya*s, and its subject-matter is extremely extensive. This one text illuminates, rather significantly, the social, economic, political and religious life of India. Till date, we have access to two exegeses on the *Arthaśāstra* composed by Kauṭilya-Bhaṭṭasvāmī's *Pratipadapañcikā* and Mādhavayajña's *Nayacandrikā*, both of which are incomplete.

C. THE SMṚTI TRADITION

The tradition of the Smṛti-texts commences after the *Arthaśāstra*; and the Smṛti-texts are those outside the Vedic corpus tradition heritage. One meaning of the word *smṛti* is life. The second meaning equates *smṛti* with the Dharmaśāstras. As has been said/mentioned in the *Manu-Smṛti — śrutistu vedo vijñeyo dharamśāstram tu vai smṛtiḥ*.[19] There is no unanimity of opinion *vis-*

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[17] *Arthaśāstra*, 1/1/1.

[18] *Yājñavalkya-Smṛti*, 2/21.

[19] *Manu-Smṛti*, 2/10.

á-vis the number of "Smṛti-texts". In the *Vīramitrodaya*, 18 Smṛtis, 18 Upasmṛtis and the names of 21 others *Smṛtikāras* (or composers of Smṛti-texts) have been mentioned,[20] although this number increases to 100 by the time we come to the seventeenth century. The majority of the Smṛti-texts are in verse, but some are in prose and some in a mixture of prose and verse. Amongst the Smṛtis, the *Manu-Smṛti* is the oldest, after which are placed the Yajñavalkya, Parāśara and Nārada, etc., Smṛtis.

(i) ***Manu-Smṛti*** — The *Manu-Smṛti* is the oldest among all the Smṛtis. The *Ṛgveda* accords to Manu the fatherhood of the human race.[21] In an encomium (*stuti*), a sage (*ṛṣi*) of the *Ṛgveda* enjoins upon us a strict adherence to the path of Manu — *mā naḥ paṭhaḥ pitṛyat mānavadadhi dūram naista paravatāḥ*.[22] Manu is discussed in the other *Saṁhitā*s too. There is a *gāthā*, on the subject of Manu, in the *Aitareya Brāhmaṇa* and the *Śatapatha Brāhmaṇa*; it is the story of Manu and the Deluge (*pralaya*). It is mentioned in the *Nārada-Smṛti* that Manu had written, with 1 lakh *śloka*s, 1080 *adhyāya*s and 24 *prakaraṇa*s, a *Dharmaśāstra*, and taught it to Nārada. After abridging it to 12 thousand *śloka*s, Nārada taught it to Mārkaṇḍeya, who, after abridging it to 8 thousand *śloka*s, taught it to Sumati Bhārgava. In his turn, Sumati Bhārgava abridged it to 4 thousand *śloka*s. According to the *Manu-Smṛti*, Brahmā, by dividing his body into two parts created (*puruṣa*) and woman (*strī*) from these two; and, from that woman, the entity called *virat*, which is defined as being male, was created. Manu, the creator of the world, was born out of that *virat*. Manu created the ten "Prajāpatis" from himself.[23] Brahmā tutored Manu in the *śāstra*s, which were transmitted to the ten Prajāpatis by Manu. As has been written in the *Manu-Smṛti* —

idamsastram tu kritvasau mameva svayamāditaḥ ।
vidhivad grahayamasa maricyadim stvaham munit ॥

Some other sages went to Manu and requested him to tutor them in the *varṇa dharma*, at which Manu said that this work would be done by his disciple Bhṛgu. As the *Manu-Smṛti*[24] says —

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[20] *Vīramitrodaya Paribhāṣāprakaraṇa.*

[21] *Ṛgveda*, 1/80/16; 1/114/2; 2/33/13.

[22] *Ibid.*, 3/30/3.

[23] *Manu-Smṛti*, 1/32-3.

[24] *Ibid.*, 1/58.

etadvoyaṁ bhr̥guḥ śāstraṁ śravayisyatya śoṣataḥ ।[25]
etaddhi mattodhijage sarvameṣo tehilaṁ muniḥ ॥

It is difficult to state who actually composed the *Manu-Smr̥ti*, but it is true that Manu, the primeval ancestor of Man, had not created it. In the present *Manu-Smr̥ti*, as transmitted by Bhr̥gu (*Bhr̥guprokta*), there are 12 *adhyāya*s and 2694 *śloka*s. In this, there are descriptions of the creation of the world, *dharma* and the constituents of *dharma*, the *āśrama*-system, edibles and inedibles, royal or "etatiste" duty, legal administration, *prāyaścitta*, or ritual atonement, etc. The most ancient exegesist, *vis-á-vis* the *Manu-Smr̥ti*, is Medhātithi. Apart form him, Govindarāja, Kullūka, Nārāyaṇa, Rāghavānanda, Nandānana and Rāmacandra were prominent exegesists. Till date, 10 exegetical works on the *Manu-Smr̥ti* have been published.

(ii) ***Yājñavalkya-Smr̥ti*** — In the *Yājñavalkya-Smr̥ti*, there are 3 *adhyāya*s and 1000 *śloka*s; and it is extremely well-structured in terms of subject-matter. The complete *Smr̥ti* is written in the *anuṣṭup* metre; apart from the *Yājñavalkya-Smr̥ti*, there are three other *Smr̥ti*s with the name Yājñavalkya — *Vr̥hadajñavalkya*, *Yoga Yājñavālkya*, and *Vr̥hadajajñavalkya*. On the *Yājñavalkya-Smr̥ti* there are available some "exegetical works" by Viśvarūpa, Vijñāneśvara, Aparārka, Śūlapāṇi, Bālakr̥ṣṇa. Even today, Indian courts honour, and follow, some usages defined in the relevant *Mitākṣarā*, which has been composed by Vijñāneśvara.

(iii) ***Parāśara-Smr̥ti*** — In the *Parāśara-Smr̥ti*, there are 12 *adhyāya*s and 593 *śloka*s, in which only ritual practices *ācāraḥ*, and penances, or *prāyaścitta*s have been discussed. A *Br̥hatparāśara-Saṁhitā* is also available, and, in it, there is, first, the *Parāśara-Saṁhitā*, and he has, at his level, commented upon and discussed usage-related issues.

(iv) ***Nārada-Smr̥ti*** — The *Nārada-Smr̥ti* is divided into 18 *prakaraṇa*s, with 1028 *śloka*s and, in this text, discussions of usage are the most important. The exegetists of the *Nārada-Smr̥ti* are Asahāya and Kalyāṇa Bhaṭṭa.

In this manner, many Smr̥tis have been advancing this tradition till the seventeenth century. There are numerous erroneous assumptions, *vis-á-vis* these Smr̥tis, in society, and there is a need to repudiate them.

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[25] *Manu-Smr̥ti*, 1/59.

D. THE ṬĪKĀ, BHĀṢYA, NIBANDHA TRADITION

The *ṭīkā, bhāṣya, nibandha* tradition moves forward with the smṛti-texts, till the nineteenth century. The following list mentions the texts in this tradition[26] —

1. Asahāya — *Gautamadharmasūtra-Bhāṣya.*
2. Bhāratīyajña — *Gautamadharmasūtra-Ṭīkā.*
3. Viśvarūpa — *Yājñavalkya-Smṛti* — "Bālkrīḍā-Ṭīkā".
4. Bhāruci — *Viṣṇudharmasūtra-Bhāṣya.*
5. Medhātithi — *Manu-Smṛti-Ṭīkā.*
6. Bhojadeva — *Bhujabala-Nibandha.*
7. Devasvāmī — *Smṛtisamuccaya-Nibandha.*
8. Vijñāneśvara — *Yājñavalkya-Smṛti-Mitākṣarā-Ṭīkā.*
9. Bhāvadevabhaṭṭa — *Vyavahāratilaka-Nibandha.*
10. Govindarāja — *Manu-Smṛti-Bhāṣya.*
11. Lakṣmīdhara — *Kalpataru-Nibandha.*
12. Jimūtavāhana — *Vyavahāramātṛkā, Dāyabhāga-Nibandha.*
13. Aparārka — *Yājñavalkya-Smṛti-Ṭīkā.*
14. Śrīdhara — *Smṛtyathasāra-Nibandha.*
15. Aniruddha — *Haralatā, Pitṛdayita-Nibandha.*
16. Ballālasena — *Ācārasāgara, Dānasāgara-Nibandha.*
17. Devannabhaṭṭa — *Smṛti-Candrikā-Nibandha.*
18. Haradatta — *Gautamadharmasūtra-Mitākṣarā-Ṭīkā.*
19. Hemādri — *Caturvargacintāmaṇi-Nibandha.*
20. Kullūkabhaṭṭa — *Manu-Smṛti-Ṭīkā.*
21. Caṇḍeśvara — *Smṛtiratnākāra-Nibandha.*
22. Harinātha — *Smṛtisāra-Nibandha.*
23. Madhvācārya — *Paraśarāma Śaviya-Nibandha.*
24. Viśveśvarbhaṭṭa — *Madanapārijāta-Nibandha.*
    — *Smṛtimahārṇava-Nibandha.*
    — *Tithinirṇayasāra-Nibandha.*
    — *Smṛtikaumudi-Nibandha.*

25. Viśvanātha — *Madanaratna-Nibandha.*
26. Śūlapāṇi — *Yājñavalkya-Smṛti-Tipakalikā-Ṭīkā.*
27. Rudradhara — *Śuddhiviveka-Nibandha.*
28. Miśramiśra — *Vivādacandra-Nibandha.*
29. Vācaspatimiśra — *Vivādacintāmaṇi-Nibandha.*
30. Dalapati — *Nṛsiṁhaprasāda-Nibandha.*
31. Pratāparudradeva — *Sarasvatīvilāsa-Nibandha.*
32. Govindānanda — *Dānakaumudī, Śuddhikaumudī-Nibandha.*
33. Raghunandana — *Smṛtitattva-Nibandha.*
34. Nārāyaṇabhaṭṭa — *Prayāgaratna-Nibandha.*
35. Ṭoḍarmala — *Ṭoḍarānanda-Nibandha.*
36. Nandapaṇḍita — *Parāśara-Smṛti-Vidvanmanoramā-Ṭīkā.*
    — *Viṣṇudharmasūtra-Bhāṣya-Vaijayantī-Bhāṣya*
37. Kamalākara Bhaṭṭa — *Nirṇayasindhu, Dānakamalākara-Nibandha.*
38. Nīlakaṇṭha Bhaṭṭa — *Vyavahāramayūkha-Nibandha.*
39. Mitramiśra — *Vīramitrodaya-Nibandha.*
40. Anantadeva — *Smṛtikaustubha-Nibandha.*
41. Nāgojībhaṭṭa — *Ācārenduśekhara-Nibandha.*
42. Bālakṛṣṇa — *Yājñavalkyamitākṣarā-Bālaṁbhaṭa-Ṭīkā.*
43. Kāśinātha Upādhyāya — *Dharmasindhusāra-Nibandha.*
    — *Vivādārṇavasetu-Nibandha.*
44. Sarvoru Sharma Trivedi — *Vivādasārārṇava-Nibandha.*
45. Jagannātha Tarkapañcānana — *Vivādabhaṅgārṇava-Nibandha.*

In this manner, apart from these prominent texts, there have been composed, in this tradition, thousands of exegetical texts *ṭīkās*, *bhāṣyas* and *nibandhas* on the Dharmaśāstras, and these can be sourced, in manuscript form, in different libraries. Their chronology stretches from the sixth to the nineteenth century.

It is the millennial Dharmaśāstra-tradition that has preserved our society, culture and way of life. Today, one will have to go to Indian villages to witness its live continuity as a folk-tradition. Despite the numerous cyclones of foreign invasions, this Indian society is still alive and kicking because of this very tradition. After Independence, the Constituent Assembly endeavoured to frame a Constitution for India; but it could not be adapted as *Dharmaśāstra* for "India." Even today, for our religious rites and other activities, practices and conduct, ceremonies and festivals, etc., we have to refer back to those very texts, which, despite numerous attacks, had kept Indian society in unity. The Dharmaśāstra-texts are not read by our students of either sociology or history; nor do students of law and jurisprudence attempt to contextualize them. They are only lived.

E. RETRIAL

In order to advance our Dharmaśāstra tradition, I have composed, in almost five hundred *śloka*s, which are spread over two *adhyāya*s, an original text in Sanskrit, called *Dharmaśāstra;* and it is divided into *adhyāyas* called *Snātakādhyāya* and *Samājādhyāya*. Despite propagating constitutional ideas of this tradition, the text does not ignore the tradition and delineates the trajectory of its principles.[27] Some of the significant ideas of this text are presented here — people should for the development of society, know their own work and rites, and also follow them within the levels of the constitution. Today, our society is going through a massive transformation, keeping which in mind one is attempting a new interpretation of the *caturvarṇya*-system propounded by Manu —

> *sarvesancaivamacaram kāryakāryavinirṇayam* ।
> *samvidhānoditam sarvam kramenaiva vicāraye* ॥
> *caturvarṇyavyavasthā ya manuna pratipadita* ।
> *saisaiva prathama cāsti samājasya hitāya vai* ॥
> *brāhmaṇa kṣatriyavaiśyaḥ śūdraścāpi vyavasthitaḥ* ।
> *jātyanaiva hi caitesayavabodho vidhiyatam* ॥[28]

It is not possible to envisage a casteless or classless society as this world is divided into numerous and various classes and sub-classes. Hence, the framers of the Constitution had to divide society, from the perspective of its welfare, into five classes. By ending the *varṇa*-system, as propounded by Manu, some people are perpetrating a horrid class-conflict, through politics. This social system, divided, as it is, into five classes or categories, is spreading casteism, despite not wanting to do so —

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26. *Dharmaśāstra kā Itihās*, I, P.V. Kane, Lucknow, Uttar Pradesh Hindi Samsthan, 1992.
27. *Dharmaśāstram*, I, Santosh Kumar Shukla, Delhi, Vidya Nilayam, 2000.
28. *Ibid.*, 1/3, 14-16.

varṇaśūnya samājasya vargaśūnyasya va tathā ।
kalpanā naiva lokehismin kartum hi sakyate'dhunā ॥
samagra hi tathā visasam vibhaktam vividheṣuca ।
vargeṣu copavargeṣu sarvannaiva viśeṣataḥ ॥
samvidinam vargastatroccadiviśeṣanaiḥ ।
pañcaite varṇita nūnam samājahitakkāmyāya ॥
varṇādināṃ tathā lopam kartṛñca dridaniścayaḥ ।
vanam vilopya kurvanti vargavadam bhayamlearam ॥[29]

In a democratic set-up, some people have started to understand "freedom" as a perception-dependent form of autocracy; and observance of loss as dependence. This is not good. Political "-ism"-s are not for making speeches; they have to be realized, and/or brought down in (actual) life, or all of them will be proven futile. Love, truth, industry, respect/admiration, law, esteem and national feeling have to be understood as the great *yajña* of democracy, and, depending on one's energy, these have to be used, as is feasible, in the course of life.

yathecchaṃ naiva svatantryam paratantryyam nava vidhiḥ ।
maryādāsaṁyutam rāṣṭram ciram maṅgalamācaret ॥
sarvān vadan samanvetu karmabhirnatu bhāṣānaiḥ ।
jñānam bhāraḥ kriyāśūnyam nunayera sadā smaret ॥
premabhāvañca satyañca śramam śraddhām vidhim tathā ।
ādaram rāṣṭrabhāvañca yathā śakti nāthapayet lokatantre
hi caitāni mahāyajñāni janatā ।
snātakena ca kāryāṇi alase napramadina ॥[30]

Economic equality is never possible in society; and, hence, social equality should be tried to be brought in. Equality and disparity come into society through education. Hence, social equality may be ushered in through a common education system. It should not be that one is unable to get an education due to the lack of money. The Government should make such a system that both the poor and the rich get the same education. No human being is either big or small from birth, and it is his work that makes him small or big.

ārthiki samatā naiva kadācit sambhava bhuvi ।
sāmājikam tathā sāmyamkāryenaiva vidhiyatam ॥

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[29] *Ibid.*, 1/17-20.

[30] *Dharmaśāstram*, I, Santosh Kumar Shukla, Delhi, Vidya Nilayam, 2000, 1/28, 36-38.

śikṣāya caiva jāyante saṁyam visamatastathā ।
atohi sarvalokānām tathā śikṣā samatā bhavet ॥
na hi kaścid dhanābhāve śikṣārjenahayamo bhavet ।
kayya ca sarvakāreṇa vyavasthaitadṛṣṭ sadā ॥
na kaścinjanmanā hīno nahi kaścinmahān mataḥ ।
karmaiva tasya jovasya pramāṇam manyatam sadā ॥
etahasasya bhāvasys hisarvakāreṇa karmaṣu ॥[31]

National culture expands through caste-culture. Similarly, the national language and national education occupy exalted places. The Nation is not made of any piece of land, but of its culture, language, education, precepts, practices and folk-tradition. No person becomes an Indian merely by taking birth in India, but has to actualize it through work, practices and education. S/He should also have to understand her/his own history; it is only then that s/he would start feeling proud of herself/himself. By freedom of speech and expression, one can never mean the repudiation/pejoration of India, abusing its culture, and censuring its great men and women. The history of a country is not really so if it is but a narrative of slavery; it is an evil plot or confabu-lation. It is high treason. S/He, who has no respect for the Constitution, culture, national welfare of this country, has no business to stay here.

na kiñcid bhūmikhaṇḍena rāṣṭram sāmgṛhyate kvacit ।
tasya rāṣṭrasya saṁskṛtya bhāṣāya cāpiśikṣāya ॥
ācāreṇa ca lokena paramparyena sarvadā ।
rāṣṭram saṁghātate nūnam nāsti leśo'pi saṁśayaḥ ॥
jāyate janmanā naiva kaścintu bharāra sutaḥ ।
karmaṇā tena jayeta ācārenāpi vidyayā ॥
itihāso'pi bodhavyo bharatasya samairapi ।
tenaiva jāyate nūnam bhāratiyeṣu gauravam ॥
vacam svatantratā naiva bhārataya ca bhartsanam ।
galidanam tu sanskṛtyai puruṣanañca nindanam ॥
yaddeśasyetihāsastu dasatameva viśrute ।
nūnameva kucakram tat rāṣṭradrohayutam tathā ॥
yasya nāstisvadeśe'smin saṁvidhāne ca saṁskṛtau ।
tathā rāṣṭrahite śraddhā na tratra sthatumarhati ॥[32]

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[31] *Ibid.*, 2/20-22, 33-34.

[32] *Dharmaśāstram*, I, Santosh Kumar Shukla, Delhi, Vidya Nilayam, 2000, 2/66-68/124, 134-35, 138-40.

It is incumbent upon everyone born in this country that they work for its security/defence and rise. In any country, it is the youth who are the centres of hope, streams of energy and centres of revolution. For the youth, there is no religion, no creed, no region; and their sole work is the upliftment of the nation. If the regime cannot arrange for the provision of food, shelter and clothing for everyone, then it has no right to continue ruling.

etaddeśaprasutānam sarvessameva niścitam ।
dayittvam deśarakṣānayaḥ tasutthanārya sarvadā ॥
yuvaka eva deśārya asakendrāni sarvadā ।
srotāṁsi caiva ūrjayaḥ krāntikendrāṇi va tathā ॥
jatirṇa vartate dharmo mataṁ prāntaṁ tathaiva ca ।
yūnan hi kevalam karma rāṣṭrasyaiva samunnatiḥ ॥
yūnam hi niścayenaiva dratiḥ kāryaparāyaṇaḥ ।
ālasyañca pramādañca yuvaka naiva kurvate ॥
āsanam vasanam caira samesam bhavanam tathā ।
etāni tu bhavennūnam cānyathā śāsaneṇa kim ॥[33]

The propagation of the word "politics," within democracy is wrong; in order to bring about the success of democracy, the word should be *lokanīti*, or the people's system of morality. Just as administrative officers are selected by a Commission, so also should leaders leading the country be selected by a Commission. There should be a course of studies, or syllabus, for their selection; and this should include the country's culture, language, history, civilization and Constitution. When the country is led by truthful, clean and intelligent statesmen, their countrymen get working, in their own fields, with enthusiasm. It is then that a nation can become great.

rājanītistu yassaśāḥ lokatantre pracasitaḥ ।
lokanītistu kastavya lokatantram tadābhavet ॥
praśāsaka yathā loke sevayogairniyojitaḥ ।
deśetathaiva netṛṇam ayogo vidhiyatam ॥
rāṣṭrasevārata eva deśasyasyaiva saṁskṛtiṁ ।
samvidhānam tathā bhāṣāncetihasañca saryatam ॥
adhitya samyak kurvantu parikṣāyainivedanam ।
tatra yo hi samuttīrṇaḥ sa netṛtram samācaret ॥

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[33] *Dharmaśāstram*, I, Santosh Kumar Shukla, Delhi, Vidya Nilayam, 2000, 2/151, 156, 158-59, 167.

svesve karmaṇyabhirataḥ gṛhasthastu yadā bhuvi ।
utsahenaiva kurvanti tada rāṣṭram mahiyate ॥[34]

Indeed there are so many texts on the Dharmaśāstra that it is a daunting task to present their credentials. The composers of the Dharmaśāstras have threaded, with a single strand, Indian society, from religions, moral and juridical perspective, among others. Thus, in a nutshell, this is the living tradition of our Indian *Dharmaśāstra*; and every Indian is responsible for its safekeeping and advancement.

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[34] *Ibid.*, 2/202, 208-10, 214.0

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Vision of Disaster Management in Kauṭilya's Arthaśāstra

Niranjan Patel

RECENTLY the coastal states in India have been adversely hit by the Tsunami waves. The destruction of men and material has been immeasurable. Now there prevails a strong feeling that India must have an updated and integrated system of managing natural disasters. However, very few scholars have the clear perception of building a system. I, therefore, present Kauṭilya's views to combat natural calamities. It might help the policy makers to construct an efficient system for disaster management. I must say that my paper is based on the 4th *adhikaraṇa* entitled Kaṇṭakaśodhana of *Arthaśāstra*.

Kauṭilya considers natural calamities in eight categories: (1) Fire, (2) Flood, (3) Epidemic, (4) Drought and famine, (5) Threat through mice, (6) Wild animals, (7) Snakes and reptiles, (8) *Rākṣasa*. The administration is supposed to protect people from such calamities. Let's examine the measures suggested by Kauṭilya to combat the threats posed by nature and men.

Managing Fire

In the case of firebreak the following measures may be taken:

(i) During the summer season people should cook their foods outside their homes. They should also keep ready pots filled with water, rope, a ladder and other means to extinguish fire.

(ii) During the middle part of the summer day, people should refrain from lighting fire.

(iii) If a householder fails to keep the following means of fire fighting ready, he must be punished: pots filled with water, a ladder, a hatchet, a sieve, an *aṅkuśa*, a broom and a bucket made out of leather.

(iv) In addition, people are advised to keep thousands of pots filled with water at crossroads and in the administrative buildings. If fire breaks out and the householder remains passive he must be punished. If the tenant is found inactive, he must also be penalized.

(v) If fire breaks out through carelessness of the person, he must be severely dealt with. If someone deliberately sets fire, the person has to be thrown into that fire.

(vi) Further, Kauṭilya says that fire should be worshipped with offering and hymns.

Managing Flood

(i) In the monsoon, people living on the banks of rivers, should be shifted to safer places.

(ii) Boats and rafters should be kept ready for eventuality of flood.

(iii) If someone is drowning, he must be rescued. If an onlooker fails in doing so, he should be penalized.

(iv) Further, Kauṭilya says that the rivers should be worshipped on no-moon day with chanting and *mantras*, and sacrifices should be performed to appease the water god.

Managing Epidemic

The physicians must help the patients with proper medicines. The saints and the *siddhas* should help the afflicted through their blessings and spiritual powers. In addition, the following measures may also be taken:

(1) to make the patients bathe in the Gaṅgā.

(2) To ask the patient to worship his village deity by keeping vigils. Kauṭilya implies that religion could be used for curing some fatal diseases.

(3) The deity protecting a particular animal may be worshipped. For example, if the elephant is sick, prayers should be offered to the animal deity "Subramaṇyam." Similarly, Aświns should be worshipped for horses, Paśupati for cows, Varuṇa for buffaloes and Fire for goats.

Managing Drought and Famine

(i) The king or the administration must provide seeds to farmers and grains to people in general.

(ii) The stored grains in the palaces and other places should be distributed among the people.

(iii) The help of the neighbouring kings and states should be sought.

(iv) The rich should be asked to pay more tax.

(v) The common people should be enabled to migrate from the place of famine to the place where enough water, grain and fodder are available.

(vi) People should be allowed to hunt for their survival.

Managing the Mice Threat

It is believed that if the administration is unfair, the people suffer from natural calamity including mice threat. In this case, the following measures should be taken:

(i) The services of the cats and mongooses should be availed. In other words, they should be set free to curb the threat.

(ii) If someone kills a cat or a mongoose, he should be severely punished by the administration.

(iii) To eliminate the mice, grain mixed with milk and poisonous medicines be spread at the affected areas.

(vii) The acts of pacification must be performed by the saintly people.

These measures are also taken against threat posed by birds, locusts and other insects.

Managing Vyāla — Or the Threat of the Wild Animals

If there is a threat posed by wild animals such as tigers and lions, we may resort to the following measures:

(i) The dead bodies filled with intoxicating juice (*madana rasa*) should be thrown before the wild animals.

(ii) The hunters with hounds should try to entrap the wild animals through deceptions.

(iii) The armed men should kill them with weapons.

(iv) Such a man, if he saves a person from the clutches of death, should be duly rewarded. If he fails to do so, he must be penalized.

(v) The forests giving shelter to wild animals must be worshipped on an auspicious day.

Managing the Menace of Snakes

If there is a menace of snakes one may do the following things:

(i) The services of the people well versed in *sarpa-mantra* should be utilized.

(ii) The person skilled in medicinal plants may be summoned to control the menace.

(iii) The snakes and cobras should be worshipped on certain days.

(iv) Serpents posing threat may be killed through *abhicāra mantra* given in the *Atharvaveda*.

Managing the Threat of Rākṣasas

If the *rākṣasa*s, the persons proficient in necromancy, cause social disturbances, the following measures may be taken:

(i) The experts in *mantra*s and *tantra*s should be requested to perform rites to thwart the effort of the *rākṣasa*s.

(ii) Prayers must be offered for peace.

(iii) Appropriate sacrifices should be performed to pacify the evil Spirits and evil Beings.

In short, Kauṭilya maintains that the king must protect his subjects from natural calamities as a father protects his progeny. From this advice we may surmise that it is the foremost duty of the state to protect its citizens, irrespective of the caste, creed, and sex, from all kinds of calamities including the natural ones. Unfortunately, it is found that the state is practically unprepared for such calamities as earthquakes, hurricanes and tsunami waves. Kauṭilya's perception, we believe, though made centuries ago, will certainly help the State to construct an efficient and effective system to encounter the natural disasters.

References

Kauṭilya, *The Arthaśāstra* with the Commentary Shrimula of Mahamahopadhya, T. Ganapati Shastri, Varanasi, Bharatiya Vidya Prakashan: rpt. 1984.

Kauṭilīya Arthaśāstra with Cāṇakya Sūtra, Shri Vachaspati Gairola, 4th edn., Varanasi, Chowkamba Vidyabhavan: 1991.

Krishna, Rao M.V., *Studies in Kauṭilya*, 2nd edn., Delhi, Munshiram Manoharlal, 1958.

18

Indian Psyche

A Note

V. Prakasam

PSYCHE is defined as "the mind, or deepest thoughts, feelings or beliefs of a person or group." (CALD: (2003): 1002)

Indian here means what many medieval historians referred to as Hindu. For example, the Syrian astronomer — monk Severus Sebokht (AD 662) says:

> I shall now speak of the knowledge of the Hindus, . . . of their subtle discoveries in the science of astronomy — discoveries even more ingenious than those of the Greeks and Babylonians — of their rational system of mathematics, or of their method of calculation which no words can praise strongly enough — I mean the system using nine symbols. . . . — quoted in Basham 1954: vi

The word Indian does not refer to political boundaries. May be we can say all that is connoted by *bhāratīya* is what I mean by Indian. When Dr. B.R. Ambedkar became a Buddhist in 1956 he specially mentioned the fact that he had opted for Buddhism, as it was part of *bhāratīya* culture. Let me now enumerate the characteristics of Indian Psyche.

(1) Indians believe in *yuga-dharma*. The *dharma* changes with time and place. What was considered good at one time may not be considered feasible later, and again this may come up as acceptable. Just see what the ancient Indian woman enjoyed:

That a woman was entitled to *upanāyana* is clear from *Atharvaveda* where a girl is spoken of as being eligible for marriage having finished her *brahmacarya*. From the *Śrauta-Sūtra*s it is clear that women could repeat *mantra*s of the Vedas and that women were taught to read the Vedas. Pāṇini's *Aṣṭādhyāyī* bears testimony to the fact that women were teachers and taught Vedas to girl students. The stories of women entering into public discussions with men on most abstruse subjects of religion, philosophy and metaphysics are by no means few. The story of public disputation between Janaka and Sulabhā, between Yājñavalkya and Gārgī, between Yājñavalkya and Maitreyī and between Śaṅkarācārya and Vidyādharī shows that Indian women could rise to the highest pinnacle of learning and education [Ambedkar (1956) 1987: 432].

Later however she did not actively participate in public academics, might be due to changed times and some insecurity emanating from somewhere. Again she is back with all powers. Let's not forget India, Bangladesh, Sri Lanka and Pakistan have had women prime ministers. Very few countries have had this distinction in the other continents.

(2) Indians cherish ***certain ideals*** but do not feel shy of making compromises. If possible they would like to translate the ideals into practice. The psyche has been evaluated in terms of the ideals a community cherishes and also the flexibility it is capable of. The *mokṣa* concept being of the individual, not the community, individual variations in the practice of the ideal is tolerated. There may be restricted social boycott but there is no religious excommunication. Monogamy and monoandry are ideals. If certain cultural factors and compulsive reasons are there the ideal is "reset." [see also Para 17]

(3) As part of readjustment and revision there is a provision for formal forgiveness. In Telugu *aparādham* is used to mean a "lapse" as well as the "fine" to regularize or undo the lapse. It looks as though the lapses are treated as social lapses and the "correction" is socially accepted. I refer to a case in my village. The wife of a caste leader left him and went to another village and started living with another person. After about twenty years she wanted to come back and her husband wanted to take her back. Normally the leader would have imposed a fine to "delapse" the "lapse." Now that he was the caste leader he came to my father and he imposed an *aparādham* of Rs. 17.50, which he gave away to our local school to buy slates and slate pencils for the children. The caste leader got his wife back. This happened about thirty years ago. This incident establishes the traditional "indissolubility" of a Hindu marriage and an opportunity to rectify a social lapse.

This "forgiveness" is also reflected in a natural correction Vātsyāyana talks about. If a woman commits adultery she is considered to have become "pure" after her periods. This purity has to be understood as "not carrying someone else's seed."

(4) This forgiveness, tolerance and compromising attitude actually stems from the basic ethos of acceptability of variation in food habits, dress habits, marriage patterns, and worship patterns. Peaceful coexistence of variation is the strength of Indian ethos. See what Śrī Kṛṣṇa says in the *Bhagavad-Gītā*:

> Those whose minds are distorted by desires resort to other gods, observing various rites, constrained by their own natures. — VII/20
>
> Whatever form any devotee with faith wishes to worship, I make that faith of his steady. — VII/21

Note also: *Sarvadeva namaskaraḥ keśavam pratigachhati*. [The obeisance and salutation to all gods reach Keśava]

The almighty allows people to worship the way they prefer. No one will go to hell for his mode of worship. Ultimately

> At the end of many lives, the man of wisdom resorts to me, Knowing that Vāsudeva is all that is. — VII/79

This valid heterogeneity allows different communities to develop their own systems of living, and we are assured of ultimate liberation.

(5) Once we allow variation, we don't exclude others from the extension of the self. I call this "Spiralling Self," different from the "Cocooned Self." When we find a different mode of worship we include them amongst us by forging a link. This "inclusiveness" of the *bhāratīya* culture is strikingly different from the exclusiveness of the Semitic Psyche.

(6) The concepts of *karma*, *punarjanma* and ultimate *mokṣa* are very much integral to our psyche. The result of one's actions cannot be avoided and that result decides the nature and being of the next existence. The liberation from the cycle of birth and death is the ultimate. Śaṅkarācārya's

punarapi jananam punarapi maraṇam ।
punarapi jananī jaṭhare śayanam ॥

[again birth, again death, again being in the womb of a mother] refers to this. He recommends *Bhajagovindam* [remembering the almighty] to get over it.

(7) The different paths suggested for achieving *mokṣa* are complementary and/or equally valid but not exclusive or contradictory:

(i)	Nyāya	Analysis
(ii)	Vaiśeṣika	Individual characteristics
(iii)	Sāṁkhya	The count
(iv)	Yoga	Discipline/Application
(v)	Mīmāṁsā	Enquiry
(vi)	Uttara-Mīmāṁsa	Vedanta

— Basham 1954/1989: 325 31
See also Padhi and Padhi 1998: 166-240

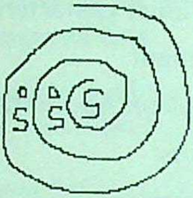
Śaṅkarācārya is said to have harmonized these different theories with reference to their common ontology. Similarly *jñāna-yoga* and *bhakti-yoga* can be complemented by *karma-mārga* and *dhyāna-mārga.*

(8) "End justifies means" is not a very useful proposition. "End decides means" is a better proposition. If having a child is the end, adoption is a means. Similarly *niyoga paddhati* could be another means. The latter cannot be treated as (prostitution or) adultery. That will be a blasphemous statement. Adultery is for pleasure, not for progeny. Similarly to treat Moab and Ammon as products of incest will be blasphemous too because the daughters wanted to "preserve offspring through (own) father" (Genesis 19 : 30-38). Incest is for pleasure, not for progeny.

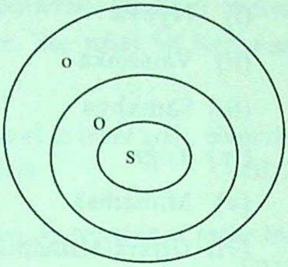
(9) *Dharma* tells us how to lead our lives and how to "realize" the Self. Here Religion is not a matter of "faith," but one of "understanding" and "realization." Religion is a question of fact, not of talk — we have to analyse our own souls and (to) find what is there. We have to understand it and (to) realize what is understood. [Vivekananda (1896) in 1976: 163] Everyone's experience is unique. No one can mediate between the "Self" and self. The individual self will have to realize the ultimate Self through experience, not through someone.

(10) One interesting effect of "realization" is the annihilation of the dualities. The one who says he is the follower of Śrī Kṛṣṇa's teaching

cannot allow any gulf between the Self and the Other. He wants us to see everyone in Him and Him in everyone. That's why I say the *Bhagavad-Gītā* teaches spiritual socialism. We have to develop a feeling of spiralling self and abandon the Cocooning Self.



Spiralling Self



Cocooning Self

Look at our Purāṇas. The gods and goddesses ask us to transcend dualities by precept and practice. Śiva's Nandī is not a great friend of the Lioness of Pārvatī. Garuḍa of Śrī Viṣṇu is not a great friend of his Śeṣa Pānpu. A *mouse* can never carry Gaṇeśa. Skanda is associated with Snakes but his carrier peacock is their enemy. Divinity is in equanimity. *Gītā* says:

> Sages see with an equal eye a learned and humble Brahmin, a cow, an elephant, a dog or its consumer. — V/18

(11) This ideal of treating all as one may not be "societally" practised. Here Religions are not responsible. Historical prejudices and human nature of one-upmanship is responsible. I do not hold Christianity responsible for racism, slavery and "invisibility" and Hinduism for caste hierarchy and "untouchability." The problem of the Burakumim — Japan's outcastes — is not an Indian export to Japan (DeVos 1971). We cannot blame Shintoism and Buddhism for their situation. Similarly the racial hierarchy — white, coloured, Asian and Black — practised in South Africa officially till recently has nothing to do with their religions.

Vajrasūcī Upaniṣad very clearly states that *varṇa* is a social convention, not *jātī*-based distinction.

(12) *Atithidevobhava* is an interesting concept which as an ideal we cherish most. When we get a guest or invite a guest we treat them to good food. We don't invite them for "gossip" and for "political chit-chat."

An American once exclaimed in my presence "can this happen among human beings?" when another American said that Indians when invited "come, eat and go away." I had to refer him to Robert Lado's "Linguistics Across Culture" and quote *atithidevobhava* to justify our behaviour. Lado's book says that American Fishing was no less cruel than Spanish Bull fights.

(13) Once Swami Vivekananda remarked how an Indian, even the least educated one too, imbibes the basic ethos of our heritage. I remember in 1966, a toilet-cleaner at Central Institute of English and Foreign Languages said: "Sir, how can I give my son in adoption to my sister-in-law. His soul entered my wife's womb with my seed and it is god's desire that he should be with me." Leaving aside the variation in the views expressed in our Upaniṣads as to when the soul enters the foetus, this uneducated person's musing was pretty enticing.

(14) The Indian mind seems to prefer "convergence of civilizations' to Huntington's "clash of civilizations" (1997). If we treat others as extension of the self and let them have their "way of life" as long as they do not tread on our toes there is no need for clash. "Absorption" is not the right term here; "convergence" is where there is "give and take" and not forced absorption. Hence the concept of "adopting a path" whenever a new set of beliefs come up in India, not conversion — forced or fraudulent. When you adopt or accept a path you don't have to deride the path you have taken so far because it is a continuation of what you have treaded so far.

(15) Religious duty (*dharma*), wealth acquired through proper means (*artha*), and righteous gratification of pleasures (*kāma*) seem to be behind all injunctions. Basham here refers to a text on the duties and amusements of Kings attributed to the twelfth Century Deccan King Someśvara III Cāḷukya:

> A King should avoid (1) untruth and (2) treachery, (3) illicit intercourse with women, and (4) eating what is forbidden.
>
> He should shun (5) envy and (6) contact with outcastes, he should (7) revere all the gods, and satisfy (8) cows and (9) brāhmaṇas.
>
> (10) have reverence for his ancestors, and (11) feed his guests, (12) obey his preceptors, (13) practise penance, and (14) bathe in sacred waters.

He should (15) nourish the poor, and (16) the orphan and widow, (17) the afflicted, and (18) his kin, and (19) his servants, and (20) protect those who come to him for refuge.

These are the twenty conditions of a successful reign (Basham 1989: 341).

Sometimes our "do's" and "don'ts" are pretty interesting. A hunter is asked not to hunt any animal when it is mating, feeding its cubs, drinking water, etc. The idea, I think, is that it should be given a chance to escape or attack.

It is said in the *Mahābhārata* that the brāhmaṇa who cannot feed himself and his family with *veda paṭhanam* can do business, but cannot sell oil, wine, diamonds and meat. I wondered why? I think the answer is simple. The items mentioned yielded huge profits and once used to profits and richness he and his children would never get back to learning/teaching, which in those days was his ordained job. Society should be well balanced with all the professions getting enough subscribers.

(16) *Pramāṇa* has always been the main yardstick of any argument. Data, scientific inquiry, logical argumentation are all part of our ethos. Hence the non-rejection of new ideas. Yes there is always a desire to link the new with the old — an extremely positive thing to do indeed. There is always a great desire to link both synchronically and diachronically different Purāṇas, e.g., Śrī Rāma and Bālī episode is thus linked with Śrī Kṛṣṇa and the hunter episode. Śrī Rāma killed Bālī in *Rāmāyaṇa* and a hunter killed Śrī Kṛṣṇa in *Bhāgavatam*.

(17) Human relations and group (community) relations are very importantly founded on mutuality and reciprocity. Irrespective of region and religion, caste and class the uncle-nephew, uncle-niece relationships, parent-child relationships are all well defined. In spite of the present trend towards nuclearization and Western leave-me-alone attitude, the ideal is not disturbed. As a result, a non deviant person tends to attend to his culturally determined duties. The liars always say that they are implementing the ideal. The deviant ones generally try to justify their behaviour without questioning the validity of the ideal.

References

Ambedkar, B.R., 1987, "The Woman and the Counter-Revolution," (1956) in *Dr. Babasaheb Ambedkar Writings and Speeches*, vol. 3.

Basham, A.L., 1989, *The Wonder that was India*, New Delhi : Rupa & Co., 1st edn., 1954, Sidgwick and Jackson Ltd.

CALD, 2003, *Cambridge Advanced Learners Dictionary*, New Delhi: Cambridge University Press.

Devos, George A., 1971, *Japan's Outcasts — The Problem of the Burakumim*, London: Minority Rights Groups.

Huntington, S.P., 1997, *The Clash of Civilization and the Remaking of World Order*, New Delhi: Penguin Books.

Padhi, B. and M. Padhi, 1998, *Indian Philosophy and Religion*, New Delhi: D.K. Printworld (P) Ltd.

Swami Vivekanand, 1896, "Realization" a lecture delivered in London on 29.10.1896 in *The Complete Works of Swami Vivekananda*, vol. II, Calcutta: Advaita Ashram.

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